

PAL's for board no. 3202. ND120/CX. Last update 27. January 1988.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8-12	12ns	513035	44302B	LBC1
2C	3932	16L8-12	12ns	513035	44303B	LBC2
1C	508A	16L8-12	12ns	513035	44304E	LBC3
15F		16L8-12	12ns	513035	44305D	CSCTL
21G	7856	16L8-12	12ns	513035	44306A	MMUCTL
13D	834E	16L8-12	12ns	513035	44307C	CYCLK
3F	46FA	16L8-12	12ns	513035	44310D	LBDIF
5D	59AF	16R4D	10ns	513060	44401B	BTIM
18F		16R4D	10ns	513060	44402D	UBITS
14D		16R4D	10ns	513060	44403C	CYINO D
15D		16R4D	10ns	513060	44404D	CYIN1 NEW
19F	0F93	16R4D	10ns	513060	44407A	ERFIX
9G	44C7	16R4D	10ns	513060	44445B	CADEC
6G	3EF5	16R4D	10ns	513060	44446B	BADEC
22F		16R6D	10ns	513061	44608A	VXFIX
12D	7F40	16R6D	10ns	513061	44601B	CYCFSM
10D	6B08	16R8D	10ns	513062	44801A	BARB ←
5F	605E	16R8D	10ns	513062	44803A	RAMA
6F		16R8B	15ns	500829	44902A	RAMC
7G	48B4	16R8B	15ns	500829	44904B	MSIZE
8D	5963	16L8B	15ns	500827	45001B	BPAR
2F		16L8B	15ns	500827	45008B	DATA
4F	43ED	16L8B	15ns	500827	45009B	ERROR
26H		16R4B	15ns		44511A	LEVO

PAL's for board no. 3202. ND120/CX 2Mb version.

Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D	10ns	513060	44425B	CADEC
6G	42EF	16R4D	10ns	513060	44426B	BADEC

PAL's for board no. 3202. ND120/CX 6Mb version.

Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D	10ns	513060	44465B	CADEC
6G	42EF	16R4D	10ns	513060	44466B	BADEC

PAL's for board no. 3202. ND120 STD.

Replace 44402X with 44412X, and 44601X with 44611X.

18F		16R4D	10ns	513060	44412A	UBITS NEW
12D		16R6D	10ns	513061	44611A	CYCFSM NEW

PROM's

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Floating Bit format no.
23B		27256	250ns	500854	45132K	32bit 0-7
26B		27256	250ns	500854	45133K	32bit 8-15
23B		27256	250ns	500854	45148K	48bit 0-7
26B		27256	250ns	500854	45149K	48bit 8-15

CS DELAY 0 pa
CSEWNP by CSWNP

25. NOV

PAL's for board no. 3202C. ND120/CX. Last update ~~21. October~~ 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device		Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D	*	10ns	513035	44302B	LBC1
2C	3932	16L8D	*	10ns	513035	44303B	LBC2
1C	508A	16L8D	*	10ns	513035	44304E	LBC3
15F		16L8D		10ns	513035	44305D	CSCTL
21G	7856	16L8D		10ns	513035	44306A	MMUCTL
13D	834E	16L8D		10ns	513035	44307C	CYCLK
3F	46FA	16L8D		10ns	513035	44310D	LBDIF
5D	59AF	16R4D		10ns	513060	44401B	BTIM
18F		16R4D		10ns	513060	44402D	UBITS
14D		16R4D		10ns	513060	44403C	CYINO
15D		16R4D		10ns	513060	44404C	CYIN1
19F	0F93	16R4D		10ns	513060	44407A	ERFIX
9G	44C7	16R4D		10ns	513060	44445B	CADEC
6G	3EF5	16R4D		10ns	513060	44446B	BADEC
22F		16R6D		10ns	513061	44608A	VXFIX NEW
12D	7F40	16R6D		10ns	513061	44601B	CYCFSM
10D	6B08	16R8D		10ns	513062	44801A	BARB
5F	605E	16R8D		10ns	513062	44803A	RAMA
6F		16R8B		15ns	500829	44902X	RAMC NEW
7G	48B4	16R8B		15ns	500829	44904B	MSIZE
8D	5963	16L8B	*	15ns	500827	45001B	BPAR
2F		16L8B		15ns	500827	45008B	DATA NEW*
4F	43ED	16L8B	*	15ns	500827	45009B	ERROR
26H		16R4B		15ns		44511A	LEVO NEW+

PAL's for board no. 3202B. ND120/CX 2Mb version.
Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D		10ns	513060	44425B	CADEC
6G	42EF	16R4D		10ns	513060	44426B	BADEC

PAL's for board no. 3202B. ND120/CX 6Mb version.
Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D		10ns	513060	44465B	CADEC
6G	42EF	16R4D		10ns	513060	44466B	BADEC

PROM's

Pos.no.	Check-sum	Device		Max. delay	Stock no.	Reg. no.	Floating Bit format no.
23B	8615	27256		250ns	500854	45132	32bit 0-7
26B	C379	27256		250ns	500854	45133	32bit 8-15
23B		27256		250ns	500854	45148	48bit 0-7
26B		27256		250ns	500854	45149	48bit 8-15

* Will not work on the B-print. (Use versions without test mode).
NEW* Can use the previous version instead of a blank for raw pal.
NEW+ Future production only.

PAL's for board no. 3202C. ND120/CX. Last update 21. October 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device		Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D	*	10ns	513035	44302B	LBC1
2C	3932	16L8D	*	10ns	513035	44303B	LBC2
1C	508A	16L8D	*	10ns	513035	44304E	LBC3
15F		16L8D		10ns	513035	44305D	CSCTL
21G	7856	16L8D		10ns	513035	44306A	MMUCTL
13D	834E	16L8D		10ns	513035	44307C	CYCLK
3F	46FA	16L8D		10ns	513035	44310D	LBDIF
5D	59AF	16R4D		10ns	513060	44401B	BTIM
18F		16R4D		10ns	513060	44402D	UBITS
14D		16R4D		10ns	513060	44403C	CYINO
15D		16R4D		10ns	513060	44404C	CYIN1
19F	0F93	16R4D		10ns	513060	44407A	ERFIX
9G	44C7	16R4D		10ns	513060	44445B	CADEC
6G	3EF5	16R4D		10ns	513060	44446B	BADEC
22F		16R6D		10ns	513061	44608A	VXFIX NEW
12D	7F40	16R6D		10ns	513061	44601B	CYCFSM
10D	6B08	16R8D		10ns	513062	44801A	BARB
5F	605E	16R8D		10ns	513062	44803A	RAMA
6F		16R8B		15ns	500829	44902A	RAMC NEW
7G	48B4	16R8B		15ns	500829	44904B	MSIZE
8D	5963	16L8B	*	15ns	500827	45001B	BPAR
2F		16L8B		15ns	500827	45008B	DATA NEW*
4F	43ED	16L8B	*	15ns	500827	45009B	ERROR
26H		16R4B		15ns		44511A	LEVO NEW+

PAL's for board no. 3202B. ND120/CX 2Mb version.
Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D		10ns	513060	44425B	CADEC
6G	42EF	16R4D		10ns	513060	44426B	BADEC

PAL's for board no. 3202B. ND120/CX 6Mb version.
Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D		10ns	513060	44465B	CADEC
6G	42EF	16R4D		10ns	513060	44466B	BADEC

PROM's

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Floating Bit format	no.
23B		27256	250ns	500854	45132J	32bit	0-7
26B		27256	250ns	500854	45133J	32bit	8-15
23B		27256	250ns	500854	45148J	48bit	0-7
26B		27256	250ns	500854	45149J	48bit	8-15

* Will not work on the B-print. (Use versions without test mode).
NEW* Can use the previous version instead of a blank for raw pal.
NEW+ Future production only.

PAL's for board no. 3202C. ND120/CX. Last update 21. October 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device		Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D	*	10ns	513035	44302B	LBC1
2C	3932	16L8D	*	10ns	513035	44303B	LBC2
1C	508A	16L8D	*	10ns	513035	44304E	LBC3
15F		16L8D		10ns	513035	44305D	CSCTL
21G	7856	16L8D		10ns	513035	44306A	MMUCTL
13D	834E	16L8D		10ns	513035	44307C	CYCLK
3F	46FA	16L8D		10ns	513035	44310D	LBDIF
5D	59AF	16R4D		10ns	513060	44401B	BTIM
18F		16R4D		10ns	513060	44402D	UBITS
14D		16R4D		10ns	513060	44403C	CYINO
15D		16R4D		10ns	513060	44404C	CYIN1
19F	0F93	16R4D		10ns	513060	44407A	ERFIX
9G	44C7	16R4D		10ns	513060	44445B	CADEC
6G	3EF5	16R4D		10ns	513060	44446B	BADEC
22F		16R6D		10ns	513061	44608A	VXFIX NEW
12D	7F40	16R6D		10ns	513061	44601B	CYCFSM
10D	6B08	16R8D		10ns	513062	44801A	BARB
5F	605E	16R8D		10ns	513062	44803A	RAMA
6F		16R8B		15ns	500829	44902A	RAMC NEW
7G	48B4	16R8B		15ns	500829	44904B	MSIZE
8D	5963	16L8B	*	15ns	500827	45001B	BPAR
2F		16L8B		15ns	500827	45008B	DATA NEW*
4F	43ED	16L8B	*	15ns	500827	45009B	ERROR
26H		16R4B		15ns		44511A	LEVO NEW+

PAL's for board no. 3202B. ND120/CX 2Mb version.
Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D		10ns	513060	44425B	CADEC
6G	42EF	16R4D		10ns	513060	44426B	BADEC

PAL's for board no. 3202B. ND120/CX 6Mb version.
Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D		10ns	513060	44465B	CADEC
6G	42EF	16R4D		10ns	513060	44466B	BADEC

PROM's

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Floating Bit format	no.
23B		27256	250ns	500854	45132J	32bit	0-7
26B		27256	250ns	500854	45133J	32bit	8-15
23B		27256	250ns	500854	45148J	48bit	0-7
26B		27256	250ns	500854	45149J	48bit	8-15

* Will not work on the B-print. (Use versions without test mode).
NEW* Can use the previous version instead of a blank for raw pal.
NEW+ Future production only.

PAL's for board no. 3202C. ND120/CX. Last update 12. October 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device		Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D	*	10ns	513035	44302B	LBC1
2C	3932	16L8D	*	10ns	513035	44303B	LBC2
1C	508A	16L8D	*	10ns	513035	44304E	LBC3
15F		16L8D		10ns	513035	44305D	CSCTL
21G	7856	16L8D		10ns	513035	44306A	MMUCTL
13D	834E	16L8D		10ns	513035	44307C	CYCLK
3F	46FA	16L8D		10ns	513035	44310D	LBDIF
5D	59AF	16R4D		10ns	513060	44401B	BTIM
18F		16R4D		10ns	513060	44402D	UBITS
14D		16R4D		10ns	513060	44403C	CYINO
15D		16R4D		10ns	513060	44404C	CYIN1
19F	0F93	16R4D		10ns	513060	44407A	ERFIX
9G	44C7	16R4D		10ns	513060	44445B	CADEC
6G	3EF5	16R4D		10ns	513060	44446B	BADEC
22F	3160	16R4D		10ns	513060	44408F	VXFIX
12D	7F40	16R6D		10ns	513061	44601B	CYCFSM
10D	6B08	16R8D		10ns	513062	44801A	BARB
5F	605E	16R8D		10ns	513062	44803A	RAMA
6F		16R8B		15ns	500829	44902C	RAMC NEW
7G	48B4	16R8B		15ns	500829	44904B	MSIZE
8D	5963	16L8B	*	15ns	500827	45001B	BPAR
2F		16L8B		15ns	500827	45008B	DATA NEW*
4F	43ED	16L8B	*	15ns	500827	45009B	ERROR
26H		16R4B		15ns		44511A	LEVO NEW
26H		16L8B		15ns		45011A	LEVO OLD

PAL's for board no. 3202B. ND120/CX 2Mb version.

Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D		10ns	513060	44425B	CADEC
6G	42EF	16R4D		10ns	513060	44426B	

PAL's for board no. 3202B.

Replace

EUR: Connect 6F16 to 2F14.
(QDN)
My pal 44902B
instead for. 44802B

My bus. 45008B

Remove 7C4 from GNT
Connect 7C4 to GNT50 N5D7

* W

NEW

OLD

D-prints.

placed on existing C-prints, but must be on all

PAL's for board no. 3202C. ND120/CX. Last update 10. September 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D *	10ns	513035	44302B	LBC1
2C	3932	16L8D *	10ns	513035	44303B	LBC2
1C	508A	16L8D *	10ns	513035	44304E	LBC3
15F		16L8D	10ns	513035	44305D	CSCTL NEW
21G	7856	16L8D	10ns	513035	44306A	MMUCTL
13D	834E	16L8D	10ns	513035	44307C	CYCLK
3F	46FA	16L8D	10ns	513035	44310D	LBDIF -
5D	59AF	16R4D	10ns	513060	44401B	BTIM
18F		16R4D	10ns	513060	44402D	UBITS NEW
14D		16R4D	10ns	513060	44403C	CYINO NEW* - v
15D		16R4D	10ns	513060	44404C	CYIN1 NEW* - v
19F	0F93	16R4D	10ns	513060	44407A	ERFIX
9G	44C7	16R4D	10ns	513060	44445B	CADEC
6G	3EF5	16R4D	10ns	513060	44446B	BADEC
22F	3160	16R4D	10ns	513060	44408B	VXFIX
12D	7F40	16R6D	10ns	513061	44601B	CYCFSM
10D	6B08	16R8D	10ns	513062	44801A	BARB
6F	AAB9	16R8D	10ns	513062	44802B	RANC ← C+D
5F	605E	16R8D	10ns	513062	44803A	RAMA
7G	48B4	16R8B	15ns	500829	44904B	MSIZE
8D	5963	16L8B *	15ns	500827	45001B	BPAR
2F	546C	16L8B	15ns	500827	45008B	DATA C+D
4F	43ED	16L8B *	15ns	500827	45009B	ERROR
26H	13CA	16L8B	15ns	500827	45011A	LEVO

PAL's for board no. 3202B. ND120/CX 2Mb version.

Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D	10ns	513060	44425B	CADEC
6G	42EF	16R4D	10ns	513060	44426B	BADEC

PAL's for board no. 3202B. ND120/CX 6Mb version.

Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D	10ns	513060	44465B	CADEC
6G	42EF	16R4D	10ns	513060	44466B	BADEC

PROM's

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Floating Bit format	no.
23B		27256	250ns	500854	45132J	32bit 0-7	NEW -
26B		27256	250ns	500854	45133J	32bit 8-15	NEW -
23B		27256	250ns	500854	45148J	48bit 0-7	NEW -
26B		27256	250ns	500854	45149J	48bit 8-15	NEW -

* Will not work on the B-print. (Use versions without test mode).
NEW* Can use the previous version instead of a blank for raw pal.

PAL's for board no. 3202C. ND120/CX. Last update 14. August 1987.
Standard is 4Mb memory configured contiguously from address 0.

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Mnemonic
11D	3B8B	16L8D *	10ns	513035	44302B	LBC1
2C	3932	16L8D *	10ns	513035	44303B	LBC2
1C	508A	16L8D *	10ns	513035	44304E	LBC3
15F	54B15FD1	16L8D	10ns	513035	443050	CSCTL
21G	7856	16L8D	10ns	513035	44306A	MMUCTL
13D	834E	16L8D	10ns	513035	44307C	CYCLK
3F	46FA	16L8D	10ns	513035	44310D	LBDIF
5D	59AF	16R4D	10ns	513060	44401B	BTIM
18F	270BA	16R4D	10ns	513060	444020	UBITS
14D	3A22	16R4D	10ns	513060	444030	CYINO
15D	0F58	16R4D	10ns	513060	444040	CYIN1
19F	0F93	16R4D	10ns	513060	44407A	ERFIX
9G	44C7	16R4D	10ns	513060	44445B	CADEC
6G	3EF5	16R4D	10ns	513060	44446B	BADEC
22F	3160	16R4D	10ns	513060	44408B	VXFIX
12D	7F40	16R6D	10ns	513061	44601B	CYCFSM
10D	6B08	16R8D	10ns	513062	44801A	BARB
6F	AAB9	16R8D	10ns	513062	44802B	RAMC
5F	605E	16R8D	10ns	513062	44803A	RAMA
7G	48B4	16R8B	15ns	500829	44904B	MSIZE
8D	5963	16L8B *	15ns	500827	45001B	BPAR
2F	546C	16L8B	15ns	500827	45008A	DATA
4F	43ED	16L8B *	15ns	500827	45009B	ERROR
26H	13CA	16L8B	15ns	500827	45011A	LEVO

PAL's for board no. 3202B. ND120/CX 2Mb version.
Replace 44445X with 44425X, and 44446X with 44426X.

9G	411E	16R4D	10ns	513060	44425B	CADEC
6G	42EF	16R4D	10ns	513060	44426B	BADEC

PAL's for board no. 3202B. ND120/CX 6Mb version.
Replace 44445X with 44465X, and 44446X with 44466X.

9G	4441	16R4D	10ns	513060	44465B	CADEC
6G	42EF	16R4D	10ns	513060	44466B	BADEC

PROM's

Pos.no.	Check-sum	Device	Max. delay	Stock no.	Reg. no.	Floating Bit format no.
23B	8643	27256	250ns	500854	45132H	32bit 0-7
26B	675A	27256	250ns	500854	45133H	32bit 8-15
23B	6371	27256	250ns	500854	45148H	48bit 0-7
26B	6371	27256	250ns	500854	45149H	48bit 8-15

* Will not work on the B-print. (Use versions without test mode).

PAL16L8
JLB/CJTC 14AUG86
44302B,11D,LBC1

/QO /Q2 /CC2 /BDY25 /BDY50 /CGNT /CGNT50 /CACT /TERM GND
/BGNT /CGNTCACT /RT /IORQ TEST NC16 /DSTB /EMD /BGNTCACT VCC

```
IF (/TEST) EMD = Q2 * QO * CACT           ; CPU CYCLE TO BUS SET
              + EMD * CACT                 ;      "      HOLD
              + CGNT * CGNT50             ; CPU CYCLE TO MEM SET
              + EMD * RT * CC2 * /TERM    ; ) HOLD TERMS FOR
              + EMD * IORQ * CC2 * /TERM  ; ) CPU READ, FETCH AND
                                           ; ) MAP CYCLES
```

```
IF (/TEST) CGNTCACT = CGNT + CACT
```

```
IF (/TEST) BGNTCACT = BGNT + CACT
```

```
IF (/TEST) DSTB = CGNT + CACT * /BDY50 * /BDY25 * /IORQ
              + CACT * IORQ * CC2          ; IOX CYCLE
```

DESCRIPTION

```
; 060387 JLB: EMD WAS HOLDING IN ADDRESS PART OF IOX CYCLES AFTER
; BUFFERED WRITE CYCLES.
; EMD - ENABLE DATA PATH BETWEEN CD AND LBD
; 270387 CJTC: NEW SIGNAL DSTB TO SAMPLE DATA AT LBD/CD BUFFERS ON
; CPU FROM BUS READ, AT BDRY.
; 040487 JLB: DSTB MUST NOT CLOCK DATA BEFORE CACT GOES OFF IN IOXES.
; (NEGATIVE SETUP OF DATA IN BUS SPECS.)
;
; 180587 CJTC: 3202B
; 070887 JLB: 3202C ONLY! (TEST MODE).
```

PAL16L8
 JLB/CJTC 15AUG86
 44303B,2C,LBC2 - LOCAL DATA BUS CONTROL PAL

/CACT /CGNT /EADR /BINPUT50 MISO /IOD WRITE TEST NC9 GND
 /BACT /WLBD NC13 NC14 NC15 NC16 /CMWRITE /CBWRITE /WBD VCC

; LBD TO BD TRANSCEIVER
 ; -----

; WBD - DIRECTION FROM LBD TO BD

IF (/TEST) WBD = EADR	; ADDRESS FROM CPU TO BUS
+ CBWRITE	; CPU WRITE CYCLE TO BUS
+ IOD * MISO * /BINPUT50	; OUTPUT PART OF IOX
+ BACT	; DMA OUTPUT CYCLE

; (CBWRITE) - CPU TO BUS WRITE. STARTS ONLY WHEN THE BUS IS GRANTED.
 ; LASTS UNTIL THE END OF THE BUS CYCLE.

IF (/TEST) CBWRITE = WRITE * CACT
 + CBWRITE * CACT

; CD TO LBD TRANSCEIVER
 ; -----

; WLBD - DIRECTION FROM CD TO LBD

IF (/TEST) WLBD = CBWRITE	; CPU WRITE CYCLE TO BUS
+ CMWRITE	; CPU WRITE CYCLE TO LOCAL MEMORY
+ IOD * MISO * /BINPUT50	; OUTPUT PART OF IOX

; (CMWRITE) - CPU WRITE TO LOCAL MEMORY. LASTS UNTIL END OF MEMORY CYCLE
 ; ON BUFFERED WRITE.

IF (/TEST) CMWRITE = WRITE * CGNT
 + CMWRITE * CGNT

DESCRIPTION

; 180587 - 3202B
 ; 070887 JLB: 3202C ONLY ! (TEST MODE).

PAL16L8
 CJTC 02SEP86
 44304E,1C,LBC3 - LOCAL DATA BUS CONTROL PAL

/CGNT /BGNT /BGNT50 /MWRITE /BDAP50 /EBUS /IBAPR /GNT TEST GND
 NC11 NC12 /EBD CLKBD SAPR FAPR EBADR /BACT DBAPR VCC

; BACT - BUS ACTIVITY. LASTS FOR COMPLETE DMA TO LOCAL MEMORY
 ; CYCLE (ONLY ON MEMORY READ)

IF (/TEST) BACT = BGNT50 * /MWRITE ; ENABLE FOR DATA ONLY AFTER ADDRESS
 + BACT * BDAP50 ; HOLD AFTER BDAP FINISHED

; EBD - ENABLE BUS DATA. ENABLE LBD TO BD TRANSCEIVER
 ; SHOULD BE DISABLED DURING CGNT * /BACT, IE DISABLE WHEN CPU
 ; IS ACCESSING LOCAL MEMORY, EXCEPT WHEN TRANSCEIVER IS BEING USED
 ; AS A REGISTER TO HOLD DATA FROM A PREVIOUS DMA MEMORY READ.

IF (/TEST) EBD = EBUS * /CGNT * /GNT
 + EBUS * BGNT
 + EBUS * BACT

; EBADR - ENABLE ADDRESS FROM BUS TO LOCAL MEMORY

IF (/TEST) /EBADR = /GNT * /BGNT ;TURN ON AT BAPR WITH GNT
 + /IBAPR * /EBADR ;HOLD UNTIL BGNT AND GNT BOTH GONE
 + /GNT * /EBADR

; SLOW INVERSION

IF (/TEST) /FAPR = /IBAPR
 IF (/TEST) /SAPR = /FAPR
 IF (/TEST) /DBAPR = /SAPR

; CLOCK PULSE TO 648'S.

IF (/TEST) /CLKBD = /SAPR * /BGNT50 ; CLOCK ADDRESSES ON DELAYED BAPR.
 + /SAPR * /BDAP50 ; CLOCK DATA 50NS AFTER START OF
 + /SAPR * /MWRITE ; BGNT*BDAP ON MEMORY WRITES FROM DMA.

DESCRIPTION

; 200387 CJTC: NEED TO SLOW DOWN APR TO AS648 BUS TCVRS. PUT IT
 ; THROUGH THIS PAL INSTEAD OF F04
 ; 200387 JLB: EBADR COMES ON AT BAPR TO AVOID SPIKE ON LBD.
 ; NEW INPUT CGNT~
 ; 230387 JLB: APR DELAYED 3XPAL DELAY
 ; 240387 JLB: EBD MUST NOT CHANGE WHEN DATA IS CLOCKED IN.
 ;
 ; 180587 - 3202B
 ; 310787 JLB: BUFFERED DMA WRITE: CLOCK DATA IN 648'S ALSO.
 ; 040887 JLB: BUFFERED DMA WRITE: NEED TO ENABLE THE REGISTER IN THE
 ; 648'S FOR THE PERIOD OF BGNT.
 ; 060887 D JLB: EBADR CHANGED TO MAKE BUFFERED DMA WRITE WORK.
 ; 090887 E JLB: TEST MODE FOR C-PRINT.

PAL16L8
JLB 26NOV86
443050,15F,CSCTL

/FORM /CC1 /CC2 /CC3 /LCS /RWCS /WCS FETCH /BRK GND
/TERM /WCSTB LUA12 /WCA /ELOW /EUPP /EWCA /ECSL /WICA VCC

; CONTROL STORE CONTROL

IF (VCC) WICA = WCA * ^{*CC2}FETCH * /TERM ;WRITE PULSE TO MICROINSTRUCTION C

IF (VCC) WCSTB = /CC3 * CC1 * WCS * RWCS ;WRITE PULSE TO WRITEABLE CONTROL

+ CC3 * /CC2 * CC1 * LCS ;WRITE PULSE DURING LOAD CONTROL

IF (VCC) ECSL = RWCS * /WCS * CC3 * /TERM ;READ CONTROL STORE HOLD
+ RWCS * /WCS * /CC1 * CC2 * /TERM ;HOLD OVERLAP WITH EWCA

IF (VCC) EWCA = RWCS * /CC3 * CC2 * /TERM ;ENABLE WCA REG. IN MIC ONTO MA
+ RWCS * /CC3 * CC1 * /TERM ; AVOID BLIP ON NEXT CYCLE

IF (VCC) EUPP = LUA12 ;NORMAL ADDRESSING
+ WCA * FETCH ;WRITE INTO MICROINSTRUCTION CACHE
+ FETCH * /CC1 * /CC2 * /CC3 * /TERM ;ENABLE IN THE FIRST 50NS
; + HOLD TIME = 75NS

IF (VCC) ELOW = /LUA12 * /FETCH ;NORMAL ADDRESSING. ON FETCH EITHER
+ /LUA12 * TERM ;ENABLE ACCORDING TO LUA12 BEFORE

+ FORM * /BRK * CC2 * /TERM ;OR A MAP IS USED.
+ FORM * /BRK * CC3 * /TERM ;DO A MAP
+ /LUA12 * BRK * CC2 * /TERM ;ON BRK: USE BANK SELECTED BY LUA
+ /LUA12 * BRK * CC3 * /TERM ;

DESCRIPTION

; 130387 JLB: ELOW ALWAYS ENABLED ON TERM IF LUA12 IS LOW.
; MAY SPEED UP NON FETCH CYCLES.

; 180587 3202B
; 090687 JLB: EWCA MUST NOT BE ENABLED DURING a AND b. WILL CREATE BLIP ON
; NEXT CYCLE.
; 090687 JLB: ECSL HOLD IN g AND h.

PAL16L8
JLB 26NOV86
44306A,21G,MMUCTL

CAO WRITE /DVACC /RT /WCHIM DOUBLE /EMCL /CC2 /WCA GND
LSHADOW /LAPA /EPT /EPMAP /EPTI /EIPL /EIPU /EIPUR /ECD VCC

; MEMORY MANAGEMENT CONTROL

IF (VCC) ECD = WCA * /LSHADOW ;DISABLE CACHE ON SHADOW ACCESSES
+ RT * /LSHADOW * /CC2 ;ENABLE WHEN WRITING IN CACHE
;ENABLE IN THE FIRST PART OF READ/F

IF (VCC) LAPA = DVACC * /LSHADOW * /WCHIM ;LA TO PPN WHEN VIRTUAL ACCESSES
;WE ARE NOT ACCESSING SHADOW MEMO
;CACHE INHIBIT MAP

IF (VCC) EIPUR = /DOUBLE * LSHADOW * WRITE ;WRITING IN SHADOW IN REX MODE WI
;THE PROTECT BITS

IF (VCC) EIPU = WCHIM ;PASS PAGE NUMBER TO BE INHIBITED
+ DOUBLE * LSHADOW * CAO ;SHADOW ACCESSES IN SEX MODE
+ DOUBLE * LSHADOW * WRITE ;WRITING IN SHADOW IN SEX MODE WI
;BIT PAGE NUMBER

IF (VCC) EIPL = WCHIM ;PASS PAGE NUMBER TO BE INHIBITED
+ DOUBLE * LSHADOW * CAO ;SHADOW ACCESSES IN SEX MODE
+ LSHADOW * WRITE ;WRITING LOWER BYTE (SAME FOR REX

IF (VCC) EPTI = LSHADOW * /EMCL * WRITE ;DISABLE DURING EMCL TO AVOID JAM
+ LSHADOW * /EMCL * /DOUBLE ;ENABLE ONLY WHEN IN SHADOW
+ LSHADOW * /EMCL * /CAO ;DISABLE WHEN IN SEX MODE WE ARE
;ADDRESSES. (USE OTHER SRAM BLOCK

IF (VCC) EPMAP = /WCHIM * /DVACC * /WRITE ;DISABLE WHEN WRITING THE CACHE
+ /WCHIM * /DVACC * /LSHADOW ;DISABLE WHEN VIRTUAL ACCESS IS
+ /WCHIM * /DVACC * /DOUBLE ;ACCESSING SHADOW MEMORY EITHER
+ /WCHIM * /DVACC * CAO ;DISABLE ON SHADOW MEMORY WRITE
+ /WCHIM * LSHADOW * /WRITE ;ADRESSES.
+ /WCHIM * LSHADOW * /DOUBLE
+ /WCHIM * LSHADOW * CAO

IF (VCC) EPT = /WRITE * /EMCL ; DISBALE ON EMCL OR
+ /LSHADOW * /EMCL ; WRITING IN OTHER HALF
+ /DOUBLE * /EMCL ; WHEN IN SEX MODE
+ /CAO * /EMCL

DESCRIPTION

; 25/2/87 JLB EQUATION FOR EPT MISSING
; 18/5/87 3202B

PAL16L8
JLB 26NOV86
44307C,13D,CYCLK

/TERM /CC0 /CC1 /CC2 /CC3 /FORM /BRK /RWCS /TRAP GND
VEX /MACLK /MAP /ETRAP UCLK /EORF CYD WRFSTB /MCLK VCC

; CYCLE CONTROL CLOCK GENERATOR.

IF (VCC) MCLK = RWCS * /CC3 ;BECAUSE THE CONTROL STORE
+ RWCS * CC2 ;IN PRESENTED ONTO MA. THEN
;STORE LOCATION TO BE EXECU

IF (VCC) /WRFSTB = CC3 ;b ON 75NS CYCLES TO PROVID
+ CC2
+ CC1
+ /CC0
+ TERM

IF (VCC) /CYD = CC3 ; d + e + f WRITE PULSE USED IN WMAP AND WCA
+ /CC1
+ /CC2 * CC0
+ TERM

IF (VCC) EORF = /CC3 * /CC2 * CC1 * /CC0 * /TERM ;d MISC WRITE PULSE

IF (VCC) /UCLK = CC3 ;ON c ON ALL MEMORY REQUEST
+ CC2 ;USED TO UPDATE USED BITS A
+ /CC1
+ /CC0
+ TERM ;EXPERIMENT TO SEE IF UCLK ON TERM WAS DANGEROUS.

IF (VCC) MAP = FORM * /BRK * CC2 * /TERM ;MUST NOT COME BEFORE ALL S

IF (VCC) MACLK = MAP * /CC3 * CC2 * CC1 ;e+f CAPTURE CD FROM MEMO
+ TRAP * /CC3 * CC1 * /CC0 ;d+e CAPTURE TRAP VECTOR
+ RWCS * /CC3 ; CAPTURE MICROADDRESS
+ RWCS * CC2 * /CC1 ; TURNED OFF

IF (VCC) ETRAP = /TERM * /VEX * CC3 ; ENABLE TRAPS ONLY OUTSIDE t OR a
+ /TERM * /VEX * CC2 ; UNSTABLE TRAP IN THIS PERIOD
+ /TERM * /VEX * CC1 ; CAN DESTROY MA !
+ /TERM * /VEX * CC0 ; DISABLE TRAPS DURING VEX

DESCRIPTION

;280287 JLB: ECREQ TO LOCAL MEMORY GIVES TWO CGNTS. A SHORTER EORF,
; I.E. ONLY ON e AND NOT ON f, WILL MAKE ECREQ GO OFF 25NS SOONER

;AND HOPEFULLY CURE THIS.
;010387 JLB: ETRAP NEW OUTPUT. WILL DISABLE TRAP ON t AND a.
;080387 JLB: REMOVED UCLK ON CACHE HIT CYCLES.
;160387 JLB: REMOVED TERM IN MCLK AND MACLK TO PROVIDE SYMMETRICAL
; CLOCKS IN 50 NS CYCLES.
;170387 JLB/CJTC: REMOVED MREQ - NEEDED THE INPUT FOR NEW SIGNAL VEX.
; VEX SHOULD DISABLE TRAPS.
;180387 JLB: EORF ON d ONLY. MACLK ON e + f ON MAP.

; 270487 : M3202B
;B 300687 JLB: CYD POSITIVE POLARITY.
;C 130787 JLB: CYD FROM d TO f.

PAL16L8
ADGD 13/8/86
44310D,3F,LBDIF

/HIEN /BGNT /CGNT /LOEN /CGNT50 ECCR /BGNT50 /BGNT75 /BDAP50 GND
/MR RDATA /MWRITE50 /BIOXE /REF100 RAS /BIOXL /BDRY /BCGNT50R VCC

IF (VCC) BCGNT50R = /MWRITE50 * BGNT * BGNT50 ;FROM 50NS AFTER G
+ /MWRITE50 * CGNT * CGNT50 ;LASTS FOR THE RES

IF (VCC) BDRY = /MWRITE50 * BDAP50 * BGNT * /LOEN * /HIEN * /RAS ;BUS READ
+ MWRITE50 * BDAP50 * BGNT50 * BGNT ;BUS WRITE TO
+ BIOXL * ECCR ;IOX=ECCR
+ /MR * BDRY * BDAP50 ;HOLD TERM
+ /MR * BDRY * BIOXE ;HOLD TERM F
+ REF100
+ /MWRITE50 * BDAP50 * /BGNT50 * BGNT75 ;LATE BDRY FOR 10MH

IF (VCC) BIOXL = BIOXE * /BGNT * /CGNT

IF (VCC) /RDATA = ~~MWRITE50~~ ;INDICATES DATA READY ON READ CYCLES
+ ~~LOEN~~
+ ~~HIEN~~
+ ~~/BGNT * /CGNT~~
+ ~~RAS~~

~~BGNT * CGNT~~
CGNT * MWRITE50
BGNT * MWRITE50

DESCRIPTION

;280287 JLB: ECCR WRONG POLARITY, RESPONDS WITH BDRY TO ALL NON-
;EXISTING IOX-ES.

;280287 JLB: NEW INPUT REF~, TO GENERATE A REF PULSE OF 175-200NS
;DURATION BY GENERATING BDRY~.

;180587 M3202B

;090787 B JLB: RAS USED IN RDATA TO AVOID SPIKE ON TRANSITION FROM
;LOEN TO HIEN.

;290787 C JLB: BD HAD A TYPICAL SETUP TIME OF 140NS BEFORE BDRY ON DMA READ
;CHANGED TO 65NS (25NS REQUIRED). DMA BUFFERED WRITE: BDRY STA

;50NS AFTER BGNT GOES ACTIVE ON DMA WRITE, AND LASTS UNTIL BGN

;OR BDAP50 GOES OFF (105NS MIN.). THIS IS TO GIVE TIME FROM
;GRANT OFF TO BMEM ON IN THE FOLLOWING CYCLE.

;110887 D JLB: BDRY CAN BE LOST IF BDRY50 IS NOT PRESENT AT THE TIME STATE
;7 IN THE RAM CONTROL IS REACHED. HAPPENS WITH 10MHZ DISK CONT

;SINTRAN STOPS ON LEVEL 14 DURING STARTUP.

PAL16R4
JLB 12AUG86 BTIM.PAL
44401B,5D,BTIM

OSC /CC2 /CACT /CACT25 /BDRY50 /CGNT /CGNT50 /TERM /IORQ GND
/OE /EADR /EIOD /NC14 /Q2 /Q1 /Q0 /DAP /APR VCC

Q0 := CACT * /Q2 * /Q1 * /Q0 * /CACT25
+ /Q2 * /Q1 * Q0
+ Q2 * Q1 * Q0
+ Q2 * Q1 * /Q0

Q1 := /Q2 * Q0 * Q1
+ /Q2 * Q0 * /Q1
+ Q1 * /Q0 * Q2
+ Q1 * /Q0 * /Q2

Q2 := Q1 * /Q0 * Q2
+ Q1 * /Q0 * /Q2
+ Q2 * Q0 * Q1
+ Q2 * Q0 * /Q1

IF (VCC) APR = /Q2 * Q1 * CACT

IF (VCC) EADR = /Q2 * Q0 * CACT ; t + u
+ /Q2 * Q1 * CACT ; u + v
+ Q1 * /Q0 * CACT ; v + w
+ /Q2 * /Q1 * /Q0 * CACT * /CACT25 ; s
+ CGNT * /CGNT50 ; address part for

IF (VCC) DAP = /Q2 * /Q1 * /Q0 * CACT * CACT25
+ DAP * /TERM * IORQ * CC2

IF (VCC) EIOD = IORQ * /Q2 * /Q1 * /Q0 * CACT * CACT25 * /BDRY50 * CC2
;STARTS WHEN THE s STATE HAS BEEN REACHED AFTER COMPLETING THE LOOP.

DESCRIPTION

```

; |<-----
;
; -----<(s)000
; | /
; /CACT+CACT25 | / |
; | / |
; --/ |
;

```

```
; SAME WITH DAP. DAP HELD FOR THE REST OF THE CYCLE UNTIL TERM
; ON IORQ.
; 060387 JLB: DAP HELD INTO ADDRESS PART OF IOX CYCLES AFTER A
; BUFFERED WRITE CYCLE. SWAPPED IOD FOR IORQ IN EIOD.
; USING CC2 (NEW INPUT) TO QUALIFY DAP AND EIOD
; STATE MACHINE
;
; 180587 M3202B
; 090887 B JLB: MAXIMIZED EQUATIONS TO MATCH CLOCK SKEW.
```

|
|
-> ; (t)001

;

;- -----(u)-----(v)-----(w)-----(x)-----(y)-----(z)---

; 011 010 110 111 101 100

; 010387 JLB: EIOD TOO SOON, ONLY 15NS SETUP FOR BD BEFORE BIOXE.
; WOULD NOT LOAD FROM FLOPPY. EIOD FRONT FLANK DELAYED 25NS.

D
 PAL16R4
 JLB/CJTC 8AUG86
 44402C/18F,UBITS

FMISS

UCLK /DT /RT LSHADOW ~~/TERM~~ CYD /HITO /HIT1 /EWC GND
 /OE OUBI OUBD /IHIT NC15 NUBD NUBI /WCA /USED VCC

; CACHE USED BIT CONTROL

IHIT := HIT1 * HITO * OUBI * RT * /DT * /WCA ;FETCH
 + HIT1 * HITO * OUBD * RT * DT * /WCA ;READ

IF (VCC) USED = OUBI * RT * /DT * /WCA ;FETCH
 + OUBD * RT * DT * /WCA ;READ

/FMISS

IF (VCC) WCA = /RT * DT * EWC * CYD * ~~/TERM~~ * /LSHADOW ;WRITE OUTSIDE SHADO
 + RT * /IHIT * EWC * CYD * ~~/TERM~~ * /LSHADOW ;FETCH/READ WITHOUT

;OUTSIDE SHADOW

/NUBI := DT * /OUBI ; READ OR WRITE KEEP OLD VALUE
 + /RT * DT * HITO * HIT1 ; CLEAR IF WRITE WITH HIT

/NUBD := RT * /DT * /OUBD ; IF FETCH KEEP OLD VALUE

DESCRIPTION

;B 050387 JLB: USED BITS INVERTED TO ACTIVE HIGH.
 ;C 060387 JLB: SHOULD NOT PRODUCE WCA WHEN IN SHADOW.
 ;D 120387 JLB: HIT PATH IMPROVED

; 180576 M3202B
 ;B 300687 JLB: CYD POSITIVE POLARITY.
 ;C 130787 JLB: HOLD TERM ON WCA REMOVED BECAUSE CYD FROM d TO f.

PAL16R4
JLB 26NOV86

44404B, 14D, CYIN1

CLK CSDELAY1 CSALUM1 CSALUMO CSALUI8 CSALUI7 LBA3 LBA1 LBA0 GND
/OE /DLY1 /NC13 /NC14 /NC15 /NC16 /NOWRIT /NC18 /NC19 VCC

/SLCOND

/RRFbe

; CYCLE CONTROL INPUT GENERATOR. PART 1.

IF (VCC) DLY1 = CSDELAY1 * /LBA3 * LBA1 * LBA0 ; 25NS DELAY OF PREVIOUS CYCL

+ RRF.SLCOND

; ON MICROCODE REQUEST IN ADD

; DLYO. NB.! MUST ALSO HAVE D

; OF LONG COMPUTATION TIME.

; THIS DELAY IS ONLY USED WHE

; IS USED

; FOR ADDRESS COMPUTATION IN

NOWRIT := /CSALUM1 * /CSALUI8 * /CSALUI7
+ /CSALUMO * /CSALUI8 * /CSALUI7

DESCRIPTION

CAN BE CHANGED TO 16R6 IF NEEDED

; 270487 M3202B

; 150687 JLB: DELAY ALSO WHEN WE ARE NOT WRITING TO B- OR X-REGISTER.

; (THEY CAN STILL BE USED FOR ADRESS COMPUTATION IN THE NEXT CYCLE !!!)

PAL16R4
JLB 26NOV86
44403B, 15D, CYINO

CLK CSDELAYO CSDLY CSECOND CSLOOP /ACOND /MR LUA12 /MAP GND
/OE /NC12 /NC13 /DMAP /DMA12 /MDLY /LCS /NC18 /DLYO VCC

/SLCOND

; CYCLE CONTROL INPUT GENERATOR. PART 0.

IF (VCC) DLYO = MDLY

+ ~~CSDELAYO~~

; 25NS DELAY ON MICROCODE REQUEST

; 25NS DELAY OF PREVIOUS CYCLE ON MICROCO

+ ACOND * CSECOND

; CONDITIONAL MICROSEQUENCING

+ ACOND * CSLOOP

; USING ALU RESULT

+ LUA12 * /DMA12

;

+ /LUA12 * DMA12

; CHANGING FROM LOWER TO UPPER CONTROL S

+ DMAP

; AFTER MAP TO AVOID CSDELAY BEEING TO

LCS := MR

+ /DMA12 * /LUA12 * LCS

; LCS FROM MR AND UNTIL MA12 HAS GONE HI

+ DMA12 * LUA12 * LCS

; I.E. LMA COUNTED FROM 0 TO 8K.

+ /DMA12 * LUA12 * LCS

MDLY := CSDLY

DMA12 := LUA12

DMAP := MAP

DESCRIPTION

; 270487 : M3202B

; 160687 JLB: DLYO AFTER EVERY MAP.

IF (VCC) SLCOND = ACOND * CSECOND
+ ACOND * CSLOOP

META?

GENERATOR!!

PAL16R4
JLB 25FEB87
44407A,19F,ERFFIX

CLK IDBS0 IDBS1 IDBS2 IDBS3 IDBS4 WRTRF /LCS NC9 GND
/OE /NC12 /NC13 /NC14 /NC15 /NC16 /RRF /NC18 /ERF VCC

; IDBS = REG FILE = 5

RRF := /LCS * /IDBS4 * /IDBS3 * IDBS2 * /IDBS1 * IDBS0

; ERF

IF (VCC) ERF = RRF
+ WRTRF

DESCRIPTION

; 180587 M3202B

PAL16R4
 ADGD 18/8/86
 44445B,9G,CADEC
 CPU ADDRESS DECODER FOR 4MB MEMORY
 CK WRITE /IORQ /MOFF PPN19 PPN20 PPN21 PPN22 PPN23 GND
 /CGNT ECREQ /CRQ /MWRITE BANK0 BANK1 BANK2 /CLRQ /MSIZE0 VCC

MWRITE := WRITE

IF (VCC) CLRQ = ECREQ * /IORQ * /PPN23 * /PPN22 * /PPN21 * /PPN20 * /MOFF

+ ECREQ * /IORQ * /PPN23 * /PPN22 * /PPN21 * PPN20 * /MOFF

IF (VCC) CRQ = ECREQ * IORQ

; ECREQ W

+ ECREQ * MOFF
 + ECREQ * PPN23
 + ECREQ * PPN22
 + ECREQ * PPN21

/BANK0 := PPN21 + PPN20

/BANK2 := PPN21 + /PPN20

/BANK1 := /PPN21 + PPN20

MSIZE0 = VCC

DESCRIPTION

; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, PPN18 AND PPN19 REM

; 150387 JLB: WRITE WAS WRONG POLARITY.

; 150387 JLB: SPIKE GENERATOR REMOVED FROM CRQ.

; 180587 M3202B

; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.

PAL16R4
 ADGD 18/8/86
 44446B,6G,BADEC
 DMA ADDRESS DECODE FOR 4MB MEMORY
 DBAPR DBAPR /MOFF /BINPUT /BMEM /BD20 /BD21 /BD22 /BD23 GND
 /BGNT /BD19 /MSIZE1 /MWRITE BANK0 BANK1 BANK2 DDBAPR AOK VCC

MWRITE := BINPUT

IF (VCC) /AOK = /BMEM + BD23 + BD22 + BD21 + MOFF ;4 MB

IF (VCC) /DDBAPR = /DBAPR

/BANK0 := BD21 + BD20

/BANK2 := BD21 + /BD20

/BANK1 := /BD21 + BD20

MSIZE1 = GND

DESCRIPTION

; 2/1-86JLB: BOTH SIDES OF MWRITE EQUATION INVERTED
 ; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, BD18 AND BD19 REMOV
 ; 300387 JLB: BLRQ ASSUMED DATA HOLD TIME AFTER TRAILING EDGE OF BAPR !
 ; CHANGED TO AOK
 ; 180587 M3202B
 ; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.

ED.

PAL16R4

JLB/CJTC 17MAR87

44501B,22F,VEXFIX

408
CLK C4 C3 C2 C1 C0 M1 M0 /LCS GND

/OE IDB2 NC13 /RWCS OPCLCS VEX /LDEXM NC18 NC19 VCC

; TO FIX VIRTUAL EXAMINE BUG IN CGA

; + MISC. OTHER BUGS.

LDEXM := C4 * /C3 * /C2 * /C1 * C0 * M1 * M0 * /LCS ; COMMAND 21.3

/VEX := LDEXM * /IDB2 ; CLEAR
+ /LDEXM * /VEX ; HOLD CLEAR
+ LCS

/OPCLCS := /C4 + /C3 + /C2 + /C1 + C0 + /M1 + M0 + LCS ; COMMAND 36.2

RWCS := C4 * C3 * C2 * C1 * /C0 * /M1 * M0 * /LCS ; COMMAND 36.1

DESCRIPTION

; 180587 M3202B

; 150687 RWCS SIGNAL TOO SLOW FROM NEC G.A. MUST BE DONE IN A PAL.

PAL16R6
JLB 26NOV86
44601B,12D,CYCF5M

OSC /DLY1 /DLY0 CSDELAY0 WAIT1 WAIT2 /CGNTCACT HIT /BRK GND
/OE /SHORT /CC3 /CC2 /CC1 /COO /TERM /CX /SLOW VCC

; CYCLE CONTROL STATE COUNTER. FAST VERSION (ND-120/CX).

CX := VCC ; THIS IS THE FAST VERSION

TERM := /CC3 * /CC2 * /CC1 * /COO * SHORT * /TERM * /DLY0 * /CSDELAY0 ;50NS CYCLE
+ /CC3 * /CC2 * /CC1 * COO * SHORT * /BRK * /DLY1 * /TERM ;75NS CYCLE b
+ /CC3 * /CC2 * /CC1 * COO * HIT * /BRK * /DLY1 * /TERM ;75NS CYCLE b
+ /CC3 * /CC2 * CC1 * COO * SHORT * /BRK * /TERM ;100NS CYCLE c
+ /CC3 * /CC2 * CC1 * COO * HIT * /BRK * /TERM ;100NS CYCLE c
+ /CC3 * CC2 * CC1 * COO * BRK * /TERM ;BRK CYCLE (>200NS) g
+ /CC3 * CC2 * /CC1 * COO * SLOW * /TERM ;SLOW CYCLES INCL. FETCHES (>200
+ CC3 * /CC2 * /CC1 * /COO * /TERM ;UART,LCS,RWCS CYCLES (425NS) p

CC3 := CC2 * /CC1 * /COO * /TERM ;h+i+j+k+l+m+n+o
+ CC3 * CC1 * /TERM * CC2
+ CC3 * CC1 * /TERM * /CC2
+ CC3 * COO * /TERM * CC2 * CC1
+ CC3 * COO * /TERM * /CC2 * CC1
+ CC3 * COO * /TERM * CC2 * /CC1
+ CC3 * COO * /TERM * /CC2 * /CC1

CC2 := /CC3 * CC2 * CC1 * /TERM ;e+f+g+h+i+j+k
+ CC2 * /CC1 * /TERM * CC3
+ CC2 * /CC1 * /TERM * /CC3
+ CC2 * COO * /TERM * CC3
+ CC2 * COO * /TERM * /CC3
+ /CC3 * /CC2 * CC1 * /COO * CGNTCACT * /TERM ;d WAIT FOR BUS IF
+ /CC3 * /CC2 * CC1 * /COO * /WAIT1 * /TERM ;d WAIT1 AND NOT
+ /CC3 * /CC2 * CC1 * /COO * BRK * /TERM ;d BRK

CC1 := /CC3 * /CC2 * COO * /TERM * CC1 ;b+c+d+e+j+k+l+m
+ /CC3 * /CC2 * COO * /TERM * /CC1
+ CC3 * CC2 * COO * /TERM * CC1
+ CC3 * CC2 * COO * /TERM * /CC1
+ CC1 * /COO * /TERM * CC2 * CC3
+ CC1 * /COO * /TERM * CC2 * /CC3
+ CC1 * /COO * /TERM * /CC2 * CC3
+ CC1 * /COO * /TERM * /CC2 * /CC3

COO := /CC3 * /CC2 * /CC1 * /TERM ;a+b+f+i+j+m+n
+ /CC3 * CC2 * CC1 * COO * /TERM
+ CC3 * CC2 * /CC1 * /TERM
+ CC3 * /CC2 * CC1 * /TERM
+ /CC3 * CC2 * CC1 * /COO * /CGNTCACT * /TERM ;e WAIT FOR BUS OR LOC
+ /CC3 * CC2 * CC1 * /COO * BRK * /TERM ;e MEM CYCLE TO FINISH
+ /CC3 * CC2 * CC1 * /COO * /WAIT2 * /TERM ;e IF WAIT2 AND NOT BRK
+ /CC3 * /CC2 * CC1 * COO * CGNTCACT * /BRK * /TERM ;c PREV WRITE.

DESCRIPTION

; 060387 JLB: MOD'S FROM SLOW VERSION IMPLEMENTED.
; 060387 JLB: 100 NS CYCLE MIN. NO BUFFERED WRITE.
; 070387 JLB: 75 NS CYCLE MIN. NO BUFFERED WRITE.
; 120387 JLB: IMPROVED HIT PATH. FORM~ REMOVED. HIT INPUT ON PIN 12.
; SHORT IN ON PIN 4.
; 120387 JLB: 50 NS CYCLE ON SHORT
; 180387 JLB: MR GATED WITH WAIT1 OUTSIDE. NEW INPUT CSDELAYO.
; 180387 JLB: BUFFERED WRITE.
; 180387 JLB: 175NS SLOW & BRK CYCLES.
; 210387 JLB: 200NS SLOW CYCLES, 175NS BRK CYCLES.

; 270487 M3202B
; 060887 JLB: MAXIMIZED EQUATIONS TO MATCH CLOCK SKEW.

PAL16R8
JLB/CJTC 11AUG86
44801A,10D,BARB

OSC /CRQ /IORQ /MR /BRQ50 /REFRQ50 /BDY25 /SEMRQ50 NC9 GND
/OE /CACT /GNT /IOD /REF /MEM /DOREF /ACT /SEM VCC

; CACT - CPU IS ACTIVE ON THE ND100 BUS

CACT := CRQ * /REFRQ50 * /BRQ50 * /REF * /GNT * /SEM * /BDY25 * /MR ; 4
+ CRQ * /REFRQ50 * DOREF * /REF * /GNT * /SEM * /BDY25 * /MR ; 2
+ CACT * /BDY25 * /MR ; HOLD
+ CRQ * SEM * /GNT * /BDY25 * /MR ; SEMAP

; REF - REFRESH GRANT ON ND100 BUS

REF := REFRQ50 * /CACT * /GNT * /SEM * /BDY25 ; 1
+ REF * /BDY25 ; HOLD
+ REFRQ50 * MR ; ALWAYS GRANT REFRESH DU

; GNT - GRANT ND100 BUS TO A DMA DEVICE OR EXTERNAL BUS CONTROLLER

GNT := BRQ50 * /REFRQ50 * /CRQ * /REF * /CACT * /SEM * /BDY25 * /MR ; 3
+ BRQ50 * /REFRQ50 * /DOREF * /REF * /CACT * /SEM * /BDY25 * /MR ; 3
+ GNT * /BDY25 * /MR ; HOL
+ BRQ50 * SEM * GNT * /MR ; SEM

; IOD - IO SIGNAL TO LAST FOR THE ENTIRE BUS CYCLE

IOD := IORQ * CRQ * /REFRQ50 * /BRQ50 * /REF * /GNT * /SEM * /BDY25 * /MR ;
+ IORQ * CRQ * /REFRQ50 * DOREF * /REF * /GNT * /SEM * /BDY25 * /MR ;
+ IOD * /BDY25 * /MR ;
+ IORQ * CRQ * SEM * /GNT * /BDY25 * /MR ;

; MEM - MEM SIGNAL TO LAST FOR ENTIRE BUS CYCLE

; GENERATES BMEM WHICH IS PRESENT ON REFRESH, CPU MEMORY AND DMA CYCLE

MEM := BRQ50 * /IORQ * /IOD * /BDY25 * /MR
+ BRQ50 * /CRQ * /IOD * /BDY25 * /MR
+ BRQ50 * /DOREF * /IOD * /BDY25 * /MR
+ CRQ * /IORQ * /IOD * /BDY25 * /MR
+ REFRQ50 * /IOD * /BDY25
+ REFRQ50 * MR
+ MEM * /BDY25 * /MR

; SEM - SEMAPHORE GRANT SIGNAL

SEM := SEMRQ50 * /MR * BDY25

+ SEM * /MR * /ACT

; ACT - BUS IS ACTIVE

ACT := CACT * /BDRY25 * /MR
+ GNT * /BDRY25 * /MR

+ REF * /BDRY25 * /MR

; DOREF - INDICATES THAT LAST BUS CYCLE WAS A REFRESH

DOREF := REF * /MR * BDRY25
+ DOREF * /MR * /CACT * /GNT * /REF

DESCRIPTION

; PRIORITY:
;
; 1. REFRESH
;
; 2. CPU REQUEST AFTER A REFRESH
;
; 3. BUS REQUEST
;
; 4. CPU REQUEST

; 26/2-87JLB: WRONG HOLD TERM IN IOD.

; 180587 M3202B

- CHARLIE

R

HITH

44902

B

PAL16R8
ADGD 13/8/86
44902C, 6F, RAMC

OSC /RGNT /CGNT /BGNT /BDAP50 /MR /BGNT25 /CGNT25 /BDRY50 GND
/OE /HIEN /LOEN CAS RAS /QD /QC /QB /QA VCC

QA := QD * QC * QB * QA * /RGNT * /CGNT25 * /BGNT25
+ /QD * /QB
+ /QD * QC
+ QD * /QC
+ /QB * QA * QD * QC
+ /QB * QA * /QD * QC
+ /QB * QA * QD * /QC
+ /QB * QA * /QD * /QC

QB := /QD * QA * QB
+ /QD * QA * /QB
+ /QD * /QA * QB
+ /QD * /QA * /QB
+ QA * QC
+ QA * /QC
+ /QC * QB

QC := QD * QC * /QB * /QA * BGNT25 * /BDAP50 * /MR * /BDRY50
+ /QD * /QB * QA
+ /QD * /QB * /QA
+ QC * QA * /QD
+ QC * QA * QD
+ QB * /QA * /QD
+ QB * /QA * QD

QD := /QB * /QA * QC
+ /QB * QA * QC
+ /QB * QA * /QC
+ /QB * /QA * /QC
+ QC * QB * /QD
+ QC * QB * QD
+ QD * /QA

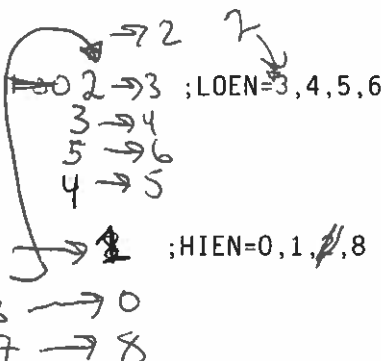
/RAS := /QD * QC * QB ;RAS=1,2,3,4,5,6
+ /QD * QC * /QB
+ /QD * /QC * QB
+ /QD * /QC * /QB
+ QC * QA * QD
+ QC * QA * /QD
+ /QC * QB * /QA

LOEN := QD * /QB * /QA * QC
+ QD * /QB * /QA * /QC
+ QD * /QC * QA * QB
+ QD * /QC * QA * /QB

HIEN := QD * QC * QB * QA
+ QD * QC * QB * /QA
+ /QD * QB * /QA * QC
+ /QD * QB * /QA * /QC

/CAS := QC * /RGNT ;CAS=4,5,6,7,8

1100 = 2



```

+ /QD * RGNT ;CAS ON REFRESH=1,2,3,4,5
+ /QD * /QB
+ QC * /QB * QA
+ QD * QB * /QA * /RGNT
+ QD * /QC * QB * RGNT

```

DESCRIPTION

```

;0)1111 IDLE UNIT NEXT GNT OF ANY TYPE
;1)1110
;2)1100 PAUSE UNTIL BDAP OCCURS (ONLY ON BGNTS)
; NO WAIT STATE ON CPU TO MEMORY WRITE
;3)1000
;4)1001
;5)1011

;6)0011
;7)0010
;8)0110
;OTHER STATES WILL GO TO IDLE AFTER 1 OSC PERIOD.

;190387 JLB: RAS & CAS INVERTED.
;190387 JLB: BGNT25 NEW INPUT. USED TO DELAY STATE MACHINE TURN ON 25NS ON
; BUS CYCLES.
;230387 CJTC: CGNT25 NEW INPUT. USED TO DELAY STATE MACHINE TURN ON 25NS ON
; CPU CYCLES.
; 020487 JLB: BDRY50 WILL GET US OUT OF THE WAIT STATE ON TIMEOUT.
;
; 180587 M3202B
; 091087 C CJTC: STATE MACHINE CHANGED TO GIVE TRANSITION ON QD BETWEEN
; STATES 5 AND 6. NEED FOR CLRERR IN 45008B.
; CHANGED FROM 44802C BECAUSE PATTERN SENSITIVITY WITH
; MMI 10NS PALS

```

PAL16R8

ADGD 13/8/86

44802B, 6F, RAM

OSC /RGNT /CGNT /BGNT /BDAP50 /MR /BGNT25 /CGNT25 /BDRY50 GND
 /OE /HIEN /LOEN CAS RAS /QD /QC /QB /QA VCC

;0)1110 IDLE UNIT NEXT GNT OF ANY T

;1)1010

;2)1011 PAUSE UNTIL BDAP OCCURS (ON

; NO WAIT STATE ON CPU TO MEM

;3)1001

;4)1000

;5)0000

;6)0001

;7)0011

;8)0010

;OTHER STATES WILL GO TO IDLE AF

QA := /QD * /QC * /QB * QA
 + /QD * /QC * /QB * /QA
 + QD * /QC * QB * QA
 + QD * /QC * QB * /QA

QB := QC * QB * QD
 + QC * QB * /QD
 + QC * /QB * QD
 + QC * /QB * /QD
 + QB * /QA * QC
 + QB * /QA * /QC
 + /QD * QA
 + QB * BGNT25 * /BDAP50 * /MR * /BDRY50

QC := /QD * QC * QB
 + /QD * QC * /QB
 + QC * /QB * QA

+ QC * /QB * /QA
 + QC * QA * QD
 + QC * QA * /QD
 + /QD * QB * /QA
 + QC * /RGNT * /CGNT25 * /BGNT25

QD := QC * QD * QB
 + QC * /QD * QB
 + QC * QD * /QB
 + QC * /QD * /QB
 + QB * /QA * QC
 + QB * /QA * /QC
 + QD * QA * QB
 + QD * QA * /QB

/RAS := QC * QA * QB
 + QC * /QA * QB
 + QC * QA * /QB
 + QC * /QA * /QB
 + /QD * QA * QD
 + /QD * QA * /QD
 + /QD * QB * QC
 + /QD * QB * /QC

LOEN := /QC * /QB * /QA * QD
 + /QC * /QB * /QA * /QD
 + QD * /QC * QA * QB
 + QD * /QC * QA * /QB

HIEN := QD * QB * /QA * QC
 + QD * QB * /QA * /QC
 + /QD * /QC * QB * QA
 + /QD * /QC * QB * /QA

;RAS=1,2,3,4,5,6

;LOEN=3,4,5,6

;HIEN=0,1,2,8

YPE

LY ON

ORY WR

TER 1

/CAS := QB * /QA * /RGNT

;CAS=4,5,6,7,8

```

+ QD * QB * /RGNT           ;CAS ON REFRESH=1,2,3,4,5
+ QC * /QB * QA
+ QC * /QB * /QA
+ QC * QA * QD
+ QC * QA * /QD
+ /QD * RGNT

```

DESCRIPTION

```

;190387 JLB: RAS & CAS INVERTED.
;190387 JLB: BGNT25 NEW INPUT. USED TO DELAY STATE MACHINE TURN ON 25NS ON
; BUS CYCLES.
;230387 CJTC: CGNT25 NEW INPUT. USED TO DELAY STATE MACHINE TURN ON 25NS ON
; CPU CYCLES.
; 020487 JLB: BDRY50 WILL GET US OUT OF THE WAIT STATE ON TIMEOUT.
;
; 180587 M3202B
; 060887 JLB: MAXIMIZE EQUATIONS WITH INTERNAL FEEDBACK TO MATCH CLOCK SKEW.

```

PAL16R8
ADGD/13/8/86
44803A,5F,RAMA

OSC /LOEN /RLRQ /MR /CLRQ /BLRQ50 /SSEMA /SEMRQ50 NC9 GND
/OE BCGNT25 /BSEM /CSEM /LDR /LOEN25 /BGNT /CGNT /RGNT VCC

RGNT := RLRQ * /CSEM * /BSEM * /RGNT * /CGNT * /BGNT ;RLRQ HIGHEST PRIORITY
+ RGNT * /LOEN * /LOEN25 ;HOLD TO END OF DRAM C

+ RGNT * LOEN * LOEN25
+ RGNT * LOEN * /LOEN25

CGNT := /MR * /CSEM * /BSEM * CLRQ * /BLRQ50 * /RLRQ * /RGNT * /CGNT * /BGNT
;CLRQ ALO

+ /MR * /CSEM * /BSEM * LDR * /RLRQ * CLRQ * /RGNT * /CGNT * /BGNT
;CLRQ * L

+ /MR * CSEM * /BSEM * CLRQ * /RGNT * /CGNT * /BGNT ;CLRQ W

+ CGNT * /LOEN * /LOEN25 * /MR
+ CGNT * LOEN * LOEN25 * /MR
+ CGNT * LOEN * /LOEN25 * /MR

BGNT := /MR * /CSEM * /BSEM * /RLRQ * /CLRQ * BLRQ50 * /RGNT * /CGNT * /BGNT

+ /MR * /CSEM * /BSEM * /LDR * /RLRQ * BLRQ50 * /RGNT * /CGNT * /BGNT

+ /MR * /CSEM * BSEM * BLRQ50 * /RGNT * /CGNT * /BGNT

+ BGNT * /LOEN * /LOEN25 * /MR
+ BGNT * LOEN * LOEN25 * /MR
+ BGNT * LOEN * /LOEN25 * /MR

LDR := RGNT ;SET ON REFRESH
+ LDR * /CGNT * /BGNT ;HOLD UNTIL NEXT B OR C-GNT

CSEM := /MR * SSEMA * CGNT ;SET ON SSEMA * CGNT
+ /MR * CSEM * LOEN25 * LOEN ;HOLD UNTIL END OF 2ND. CGNT
+ /MR * CSEM * LOEN25 * /LOEN
+ /MR * CSEM * /LOEN25 * /LOEN

BSEM := /MR * SEMRQ50 * BGNT ;SET IN SEMRQ50 * BGNT
+ /MR * BSEM * LOEN25 * LOEN ;HOLD UNTIL END OF 2ND. BGNT
+ /MR * BSEM * LOEN25 * /LOEN
+ /MR * BSEM * /LOEN25 * /LOEN

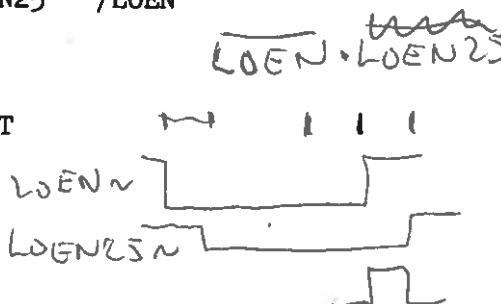
LOEN25 := LOEN

/BCGNT25 := /BGNT * /CGNT

DESCRIPTION

PRIORITY: 1. REFRESH
2. CPU * LAST DONE REFRESH
3. BUS
4. CPU

; 270387 CJTC: INCREASE PERIOD BETWEEN SUCCESSIVE GRANTS BY 25NS BY



; INTRODUCING NEW SIGNAL MFREE25~ AND NOT GRANTING ANYTHING UNTIL
; THIS IS TRUE
; 020487 JLB: MFREE NOT NEEDED, BUT TO AVIOD POWER UP PROBLEMS MCL~ ADDED.
;
; 180587 M3202B

PAL16R8
 CJTC 180587
 44904B,7G,SIZEIND

CLK /MSIZE0 /MSIZE1 /MOFF NC5 NC6 NC7 NC8 NC9 GND
 /OE /EHI /EMID /ELOW NC15 DBIT CBIT BBIT ABIT VCC

; MEMORY SIZE INDICATOR FOR 0, 2, 4 OR 6 MB MEMORY ARRAYS

EHI := EMID + ELOW * EHI + /ELOW * /EHI ; ENABLE DIGIT 3

EMID := ELOW * /EMID * /EHI ; ENABLE DIGIT 2

ELOW := /ELOW * /EMID * EHI ; ENABLE DIGIT 1

/ABIT := MOFF
 + MSIZE0 * EMID
 + EHI
 + ELOW

/BBIT := MOFF
 + /MSIZE1 * /MSIZE0 * EMID
 + MSIZE1 * MSIZE0 * EMID
 + EHI
 + ELOW

/CBIT := /MSIZE1 * ELOW
 + /MSIZE0 * ELOW
 + EHI
 + EMID
 + MOFF

/DBIT := VCC

DESCRIPTION

MEMORY SIZE	S1	S0
-----	--	--
2MB	F	F
4MB	F	T
6MB	T	F
1MB	T	T

DIGIT ENABLE BITS : ELOW --> EMID --> EHI

; 170687 CJTC/JLB: ADDED 1MB INDICATION.

PAL16L8
JLB/CJTC 11AUG86
45001B,8D,BPAR

/BDY50 /BDY75 /BLOCK25 /BPERR50 DBAPR /MOR25 /LPERR /MR /EPES GND
/EPEA SPES /LERR TEST NC15 /RERR /PARERR /BLOCK SPEA VCC

; STROBE PARITY ERROR STATUS WORD

IF (/TEST) /SPES = /BDY50 * /BDY75
 + BDRY50 * BDRY75
 + /BDY50 * BDRY75
 + BLOCK25
 + EPEA
 + EPES
 + MR

; STROBE PARITY ERROR ADDRESS

IF (/TEST) /SPEA = /DBAPR + BLOCK25 + EPEA + MR

; BLOCK SIGNAL FOR PES AND PEA STROBE - BLOCK ON ERROR, RELEASE ON PEA READ

IF (/TEST) BLOCK = BDRY50 * /BDY75 * /EPEA * /EPES * MOR25 * /MR
 + BDRY50 * /BDY75 * /EPEA * /EPES * BPERR50 * /MR
 + BLOCK * /EPEA * /MR

; PARITY ERROR SIGNALS FROM BUS AND LOCAL MEMORY

IF (/TEST) PARERR = BDRY50 * /BDY75 * BPERR50 * /MR
 + LERR

; REMOTE ERROR - LAST ERROR WAS FROM MEMORY ATTACHED TO THE ND100 BUS
; WILL BE OVERRIDEN BY AN ERROR FROM LOCAL MEMORY (PERR1 AND PERRO)

IF (/TEST) RERR = BPERR50 * /MR ;SET REMOTE ERROR ON
 + RERR * /LPERR * /MR ;HOLD UNTIL A LOCAL MEM
 + MOR25 * /MR ;=> LOCAL ERROR HAS PRI

DESCRIPTION

; 260387 CJTC: NEED TO USE DELAYED BAPR (DBAPR) INSTEAD OF BAPR~ IN
; PRODUCING SPEA. POLARITY CHANGE.
; 260387 JLB: BLOCK SIGNAL MUST NOT BE PRODUCED ON LOCAL MEMORY ERROR.
; IT WILL ONLY BE UNLOCKED ON PEA READ FROM REMOTE ERROR PEA.
; 260387 JLB: PERR HANDLING CHANGED.
; 070487 JLB: RERR MUST LATCH UP ON MOR ALSO.

; 180587 M3202B
; 090887 B JLB: TEST MODE FOR C-PRINT.

PAL16L8
ADGD 18/8/86
45008B,2F,DATA

/MWRITE /SWDIS LBD0 LBD1 LBD3 LBD4 /BIOXL ECCR /BCGNT50R GND
/HIEN /OER /MR /QD /TST /DISB /CLRERR /OET /DIS VCC

IF (VCC) OET = MWRITE ;ON WRITE TO MEMORY

IF (VCC) OER = BCGNT50R ;ON READ FROM MEMORY AFTER THE ADDRESS

+ TST * MWRITE ;ON WRITE IN TEST MODE BOTH OER AND O

IF (VCC) CLRERR = MR ;CLEAR PARITY ERROR ON MR, READING EP

+ /BCGNT50R

+ DISB

+ QD

IF (VCC) DISB = LBD3 * BIOXL * ECCR ;SET IF LDB3=1 AND IOX=ECCR

+ /MR * DISB * /BIOXL ;HOLD UNTIL NEXT IOX=ECCR

+ /MR * DISB * /ECCR

IF (VCC) TST = LBD0 * BIOXL * ECCR ;SET IF ANY OF LBD0,1,4 AND IOX=ECCR

+ LBD1 * BIOXL * ECCR ;HOLD UNTIL IOX=ECCR

+ LBD4 * BIOXL * ECCR

+ /MR * TST * /BIOXL

+ /MR * TST * /ECCR

IF (VCC) DIS = DISB + SWDIS

DESCRIPTION

; 200387 CJTC: LOGICAL ERRORS IN EQUATIONS FOR DISB AND TST

; 260387 CJTC: CHANGED PIN 2 /EPESL TO /EPEAL - CIRCUIT CHANGE ONLY!!!

; 260387 JLB: CLRERR COMES IMMEDIATELY TO MAKE PERRO&1 PULSES ONLY!!!

; 180587 M3202B

; 091087 B CJTC: AM29833 ARE GIVING ERROR OUTPUT EVEN BEFORE CLOCKED.

; QD GOES INACTIVE ON 6, JUST BEFORE RDATA THUS STOPPING

; THE FALSE CLOCKING OF THE 29833 BY HOLDING CLRERR TRUE.

PAL16L8
ADGD 18/8/86
45008A,2F,DATA

/MWRITE /SWDIS LBD0 LBD1 LBD3 LBD4 /BIOXL ECCR /BCGNT5OR GND
/HIEN /OER /MR NC14 /TST /DISB /CLRERR /OET /DIS VCC

IF (VCC) OET = MWRITE ;ON WRITE TO MEMORY

IF (VCC) OER = BCGNT5OR ;ON READ FROM MEMORY AFTER TH
+ TST * MWRITE ;ON WRITE IN TEST MODE BOTH O

IF (VCC) CLRERR = MR ;CLEAR PARITY ERROR ON MR, RE
+ /BCGNT5OR
+ DISB

IF (VCC) DISB = LBD3 * BIOXL * ECCR ;SET IF LDB3=1 AND IOX=ECCR
+ /MR * DISB * /BIOXL ;HOLD UNTIL NEXT IOX=ECCR
+ /MR * DISB * /ECCR

IF (VCC) TST = LBD0 * BIOXL * ECCR ;SET IF ANY OF LBD0,1,4 AND I
+ LBD1 * BIOXL * ECCR ;HOLD UNTIL IOX=ECCR
+ LBD4 * BIOXL * ECCR
+ /MR * TST * /BIOXL
+ /MR * TST * /ECCR

IF (VCC) DIS = DISB + SWDIS

DESCRIPTION

; 200387 CJTC: LOGICAL ERRORS IN EQUATIONS FOR DISB AND TST
; 260387 CJTC: CHANGED PIN 2 /EPESL TO /EPEAL - CIRCUIT CHANGE ONLY!!!
; 260387 JLB: CLRERR COMES IMMEDIATELY TO MAKE PERRO&1 PULSES ONLY!!!
; 180587 M3202B

PAL16L8
 ADGD 12AUG86
 45009B,4F,ERROR

RDATA /BLOCKL25 BCGNT50 /PS /RERR /PA TEST /LERR NC9 GND
 /MR SPEAL /NC13 /NC14 /NC15 /BLOCKL /EPEAL /EPESL SPESL VCC

IF (/TEST) /SPESL = /RDATA + BLOCKL25 + EPEAL + EPESL + MR ;RDATA USED AS WR
 ;PULSE WHEN NOT BLO

IF (/TEST) /SPEAL = /BCGNT50 + BLOCKL25 + EPEAL + MR ;BCGNT USED AS WR
 ;PULSE

IF (/TEST) EPESL = PS * /RERR ;ENABLE IF ERROR IN LOCAL MEMORY

IF (/TEST) EPEAL = PA * /RERR

IF (/TEST) BLOCKL = RDATA * /EPEAL * /EPESL * LERR * /MR ;SET ON LOCAL ERRO
 + BLOCKL * /PA * /MR ;HOLD TILL PEA READ

DESCRIPTION

; 2/1-87JLB: RDATA PIN 1.
 ; 070487 JLB: MUST NOT LOCK ON MOR, THAT IS DONE IN THE BUS INTERFACE ANYWAY
 ; UNBLOCK ON PA (I.E. ALSO IF THE BUS PEA WAS READ)
 ; 150487 CJTC: NO!!! SPIKES ON SPEAL - USE BLOCKL25 INSTEAD OF BLOCKL
 ;
 ; 180587 : M3202B
 ; 090887 B JLB: TEST MODE FOR C-PRINT.

PAL16R4
CJTC 30SEP87
44511A,26H,LEVO

CLK PILO PIL1 PIL2 PIL3 CLK /MREQ /WCA NC9 GND
/OE LEVO /NC13 /NC14 /NC15 /NC16 CUP /NC18 /CWR VCC

; LEVEL ZERO

IF (VCC) /LEVO = PIL3
 + PIL2
 + PIL1
 + PILO

; (CWR)
IF (VCC) CWR = MREQ * WCA ; SET ON WRITE TO CACHE
 + CWR * /CLK ; HOLD UNTIL START OF NEXT CYCLE

; CUP
/CUP := /CWR * MREQ ; CUP := CWR * MREQ ; SET ON WRITE TO CACHE
 + /CUP * /MREQ ; + CUP * /MREQ ; HOLD UNTIL NEXT MREQ

DESCRIPTION

; 180587 M3202B

061087 CJTC : ADDED CACHE UPDATE BIT (CUP) FOR M3202D

PAL16L8
JLB 7JAN87
45011A,26H,LEVO

NC1 PILO PIL1 PIL2 PIL3 NC6 NC7 NC8 NC9 GND
/NC11 LEVO /NC13 /NC14 /NC15 /NC16 /NC17 /NC18 /NC19 VCC

; LEVEL ZERO

IF (VCC) /LEVO = PIL3
+ PIL2
+ PIL1
+ PILO

DESCRIPTION

; 180587 M3202B

PAL16R4
 ADGD 18/8/86
 44425B,9G,CADEC
 CPU ADDRESS DECODER FOR 2MB MEMORY
 CK WRITE /IORQ /MOFF PPN19 PPN20 PPN21 PPN22 PPN23 GND
 /CGNT ECREQ /CRQ /MWRITE BANK0 BANK1 BANK2 /CLRQ /MSIZE0 VCC

MWRITE := WRITE

IF (VCC) CLRQ = ECREQ * /IORQ * /PPN23 * /PPN22 * /PPN21 * /PPN20 * /MOFF

IF (VCC) CRQ = ECREQ * IORQ ;ECREQ W

+ ECREQ * MOFF
 + ECREQ * PPN23
 + ECREQ * PPN22
 + ECREQ * PPN21
 + ECREQ * PPN20

/BANK0 := PPN21 + PPN20

/BANK2 := PPN21 + /PPN20

/BANK1 := /PPN21 + PPN20

MSIZE0 = GND

DESCRIPTION

; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, PPN18 AND PPN19 REM

; 150387 JLB: WRITE WAS WRONG POLARITY.

; 150387 JLB: SPIKE GENERATOR REMOVED FROM CRQ.

; 180587 M3202B

; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.

PAL16R4
 ADGD 18/8/86
 44426B,6G,BADEC
 DMA ADDRESS DECODE FOR 2MB MEMORY
 DBAPR DBAPR /MOFF /BINPUT /BMEM /BD20 /BD21 /BD22 /BD23 GND
 /BGNT /BD19 /MSIZE1 /MWRITE BANK0 BANK1 BANK2 DDBAPR AOK VCC

MWRITE := BINPUT

IF (VCC) /AOK = /BMEM + BD23 + BD22 + BD21 + BD20 + MOFF ;2 MB

IF (VCC) /DDBAPR = /DBAPR

/BANK0 := BD21 + BD20

/BANK2 := BD21 + /BD20

/BANK1 := /BD21 + BD20

MSIZE1 = GND

DESCRIPTION

; 2/1-86JLB: BOTH SIDES OF MWRITE EQUATION INVERTED
 ; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, BD18 AND BD19 REMOV
 ; 300387 JLB: BLRQ ASSUMED DATA HOLD TIME AFTER TRAILING EDGE OF BAPR !
 ; CHANGED TO AOK
 ; 180587 M3202B
 ; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.

ED.

PAL16R4
 ADGD 18/8/86
 44465B,9G,CADEC
 CPU ADDRESS DECODER FOR 6MB MEMORY
 CK WRITE /IORQ /MOFF PPN19 PPN20 PPN21 PPN22 PPN23 GND
 /CGNT ECREQ /CRQ /MWRITE BANK0 BANK1 BANK2 /CLRQ /MSIZE0 VCC

MWRITE := WRITE

IF (VCC) CLRQ = ECREQ * /IORQ * /PPN23 * /PPN22 * /PPN21 * /PPN20 * /MOFF
 + ECREQ * /IORQ * /PPN23 * /PPN22 * /PPN21 * PPN20 * /MOFF
 + ECREQ * /IORQ * /PPN23 * /PPN22 * PPN21 * /PPN20 * /MOFF

IF (VCC) CRQ = ECREQ * IORQ
 + ECREQ * MOFF
 + ECREQ * PPN23
 + ECREQ * PPN22
 + ECREQ * PPN21 * PPN20

/BANK0 := PPN21 + PPN20

/BANK2 := PPN21 + /PPN20

/BANK1 := /PPN21 + PPN20

MSIZE0 = GND

DESCRIPTION

; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, PPN18 AND PPN19 REM

; 150387 JLB: WRITE WAS WRONG POLARITY.

; 150387 JLB: SPIKE GENERATOR REMOVED FROM CRQ.

; 180587 M3202B

; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.

PAL16R4
 ADGD 18/8/86
 44466B,6G,BADEC
 DMA ADDRESS DECODE FOR 6MB MEMORY
 DBAPR DBAPR /MOFF /BINPUT /BMEM /BD20 /BD21 /BD22 /BD23 GND
 /BGNT /BD19 /MSIZE1 /MWRITE BANK0 BANK1 BANK2 DDBAPR AOK VCC

MWRITE := BINPUT

IF (VCC) /AOK = /BMEM
 + BD23
 + BD22
 + BD21 * BD20
 + MOFF ;6 MB

IF (VCC) /DDBAPR = /DBAPR

/BANK0 := BD21 + BD20

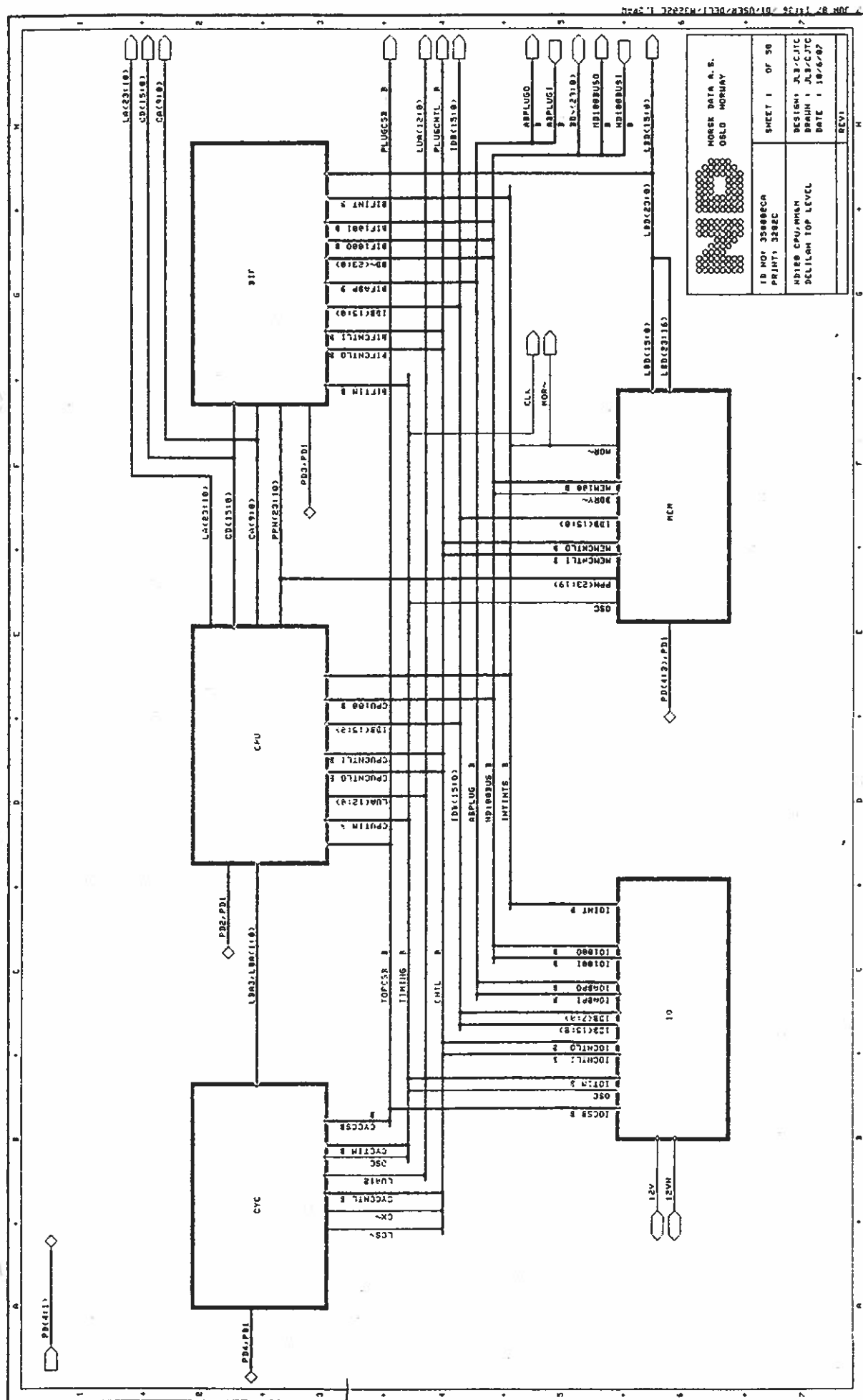
/BANK2 := BD21 + /BD20

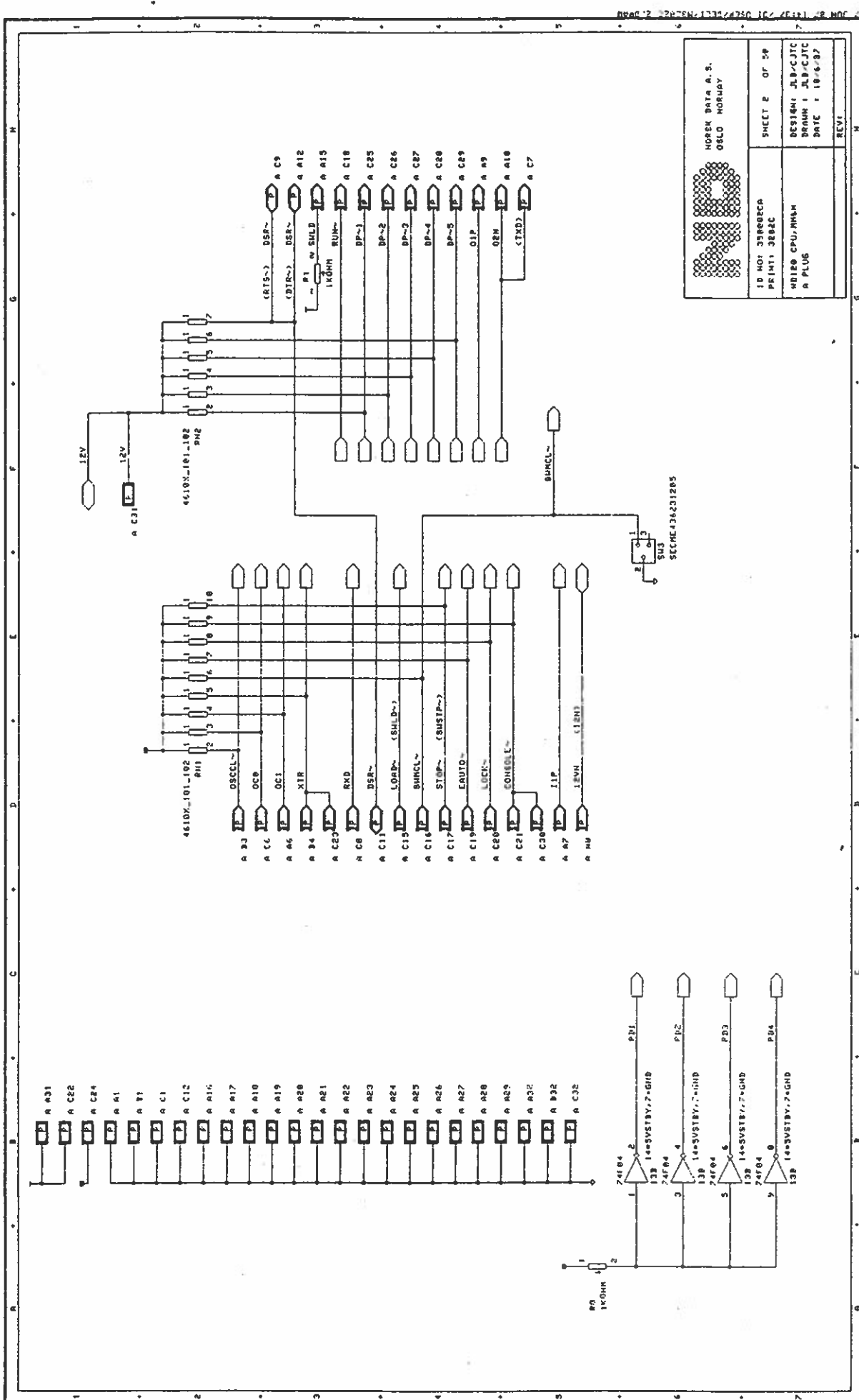
/BANK1 := /BD21 + BD20

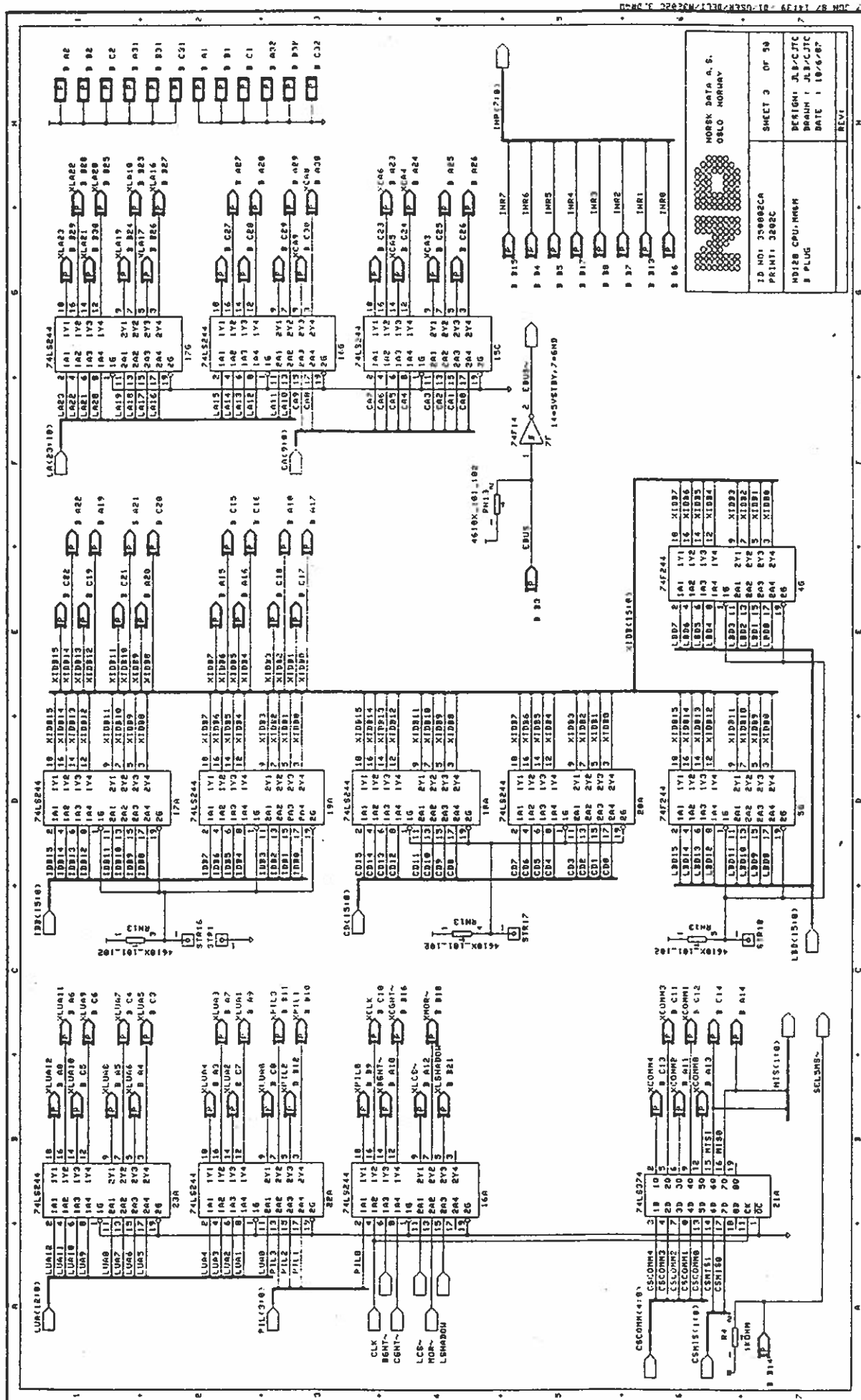
MSIZE1 = VCC

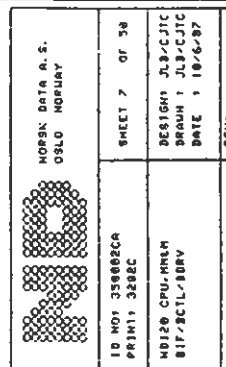
DESCRIPTION

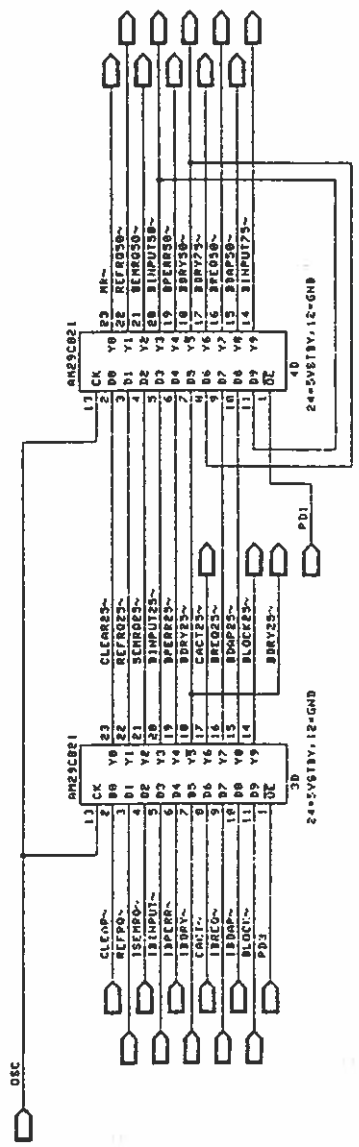
; 2/1-86JLB: BOTH SIDES OF MWRITE EQUATION INVERTED
 ; 8/1-87JLB: NEW INPUT /MOFF TO DISBLE THE WHOLE MEMORY, BD18 AND BD19 REMOV
 ; 300387 JLB: BLRQ ASSUMED DATA HOLD TIME AFTER TRAILING EDGE OF BAPR !
 ; CHANGED TO AOK
 ; 180587 M3202B
 ; 060687 JLB: SWAPPED BANK1 AND BANK2 TO PROVIDE ENOUGH SPACE FOR PACKAGES.



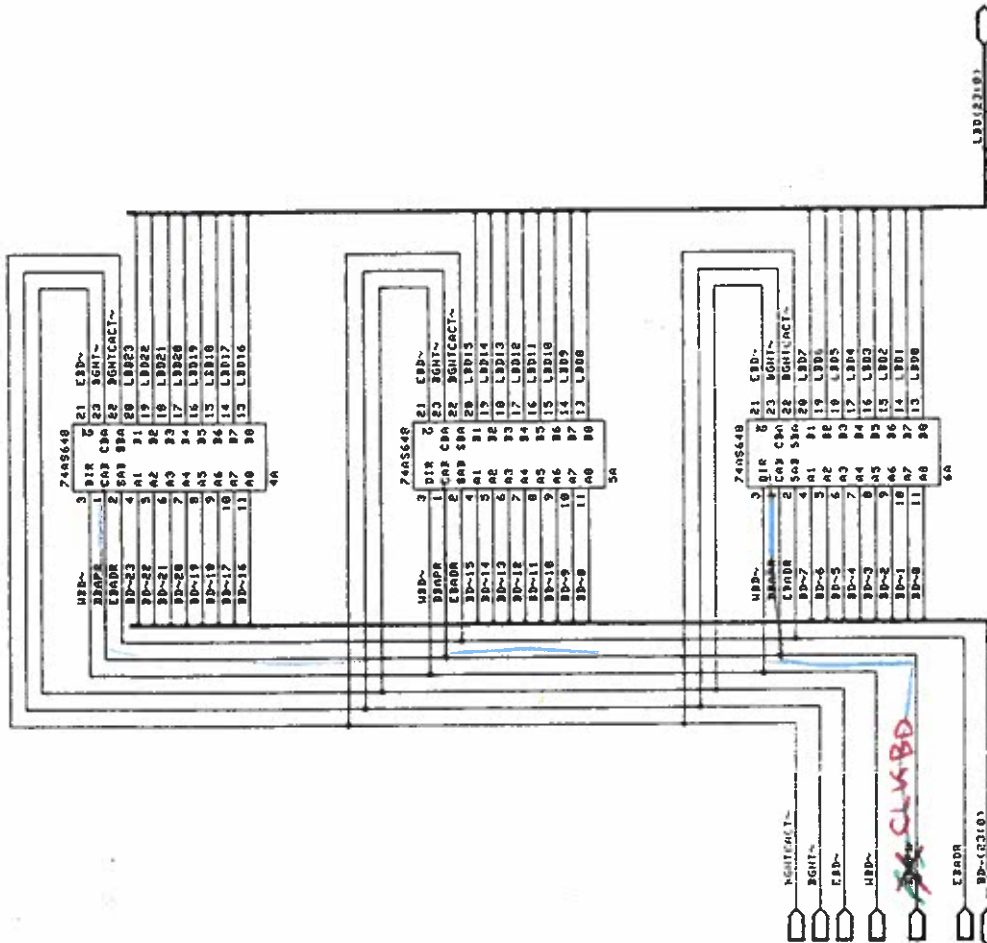






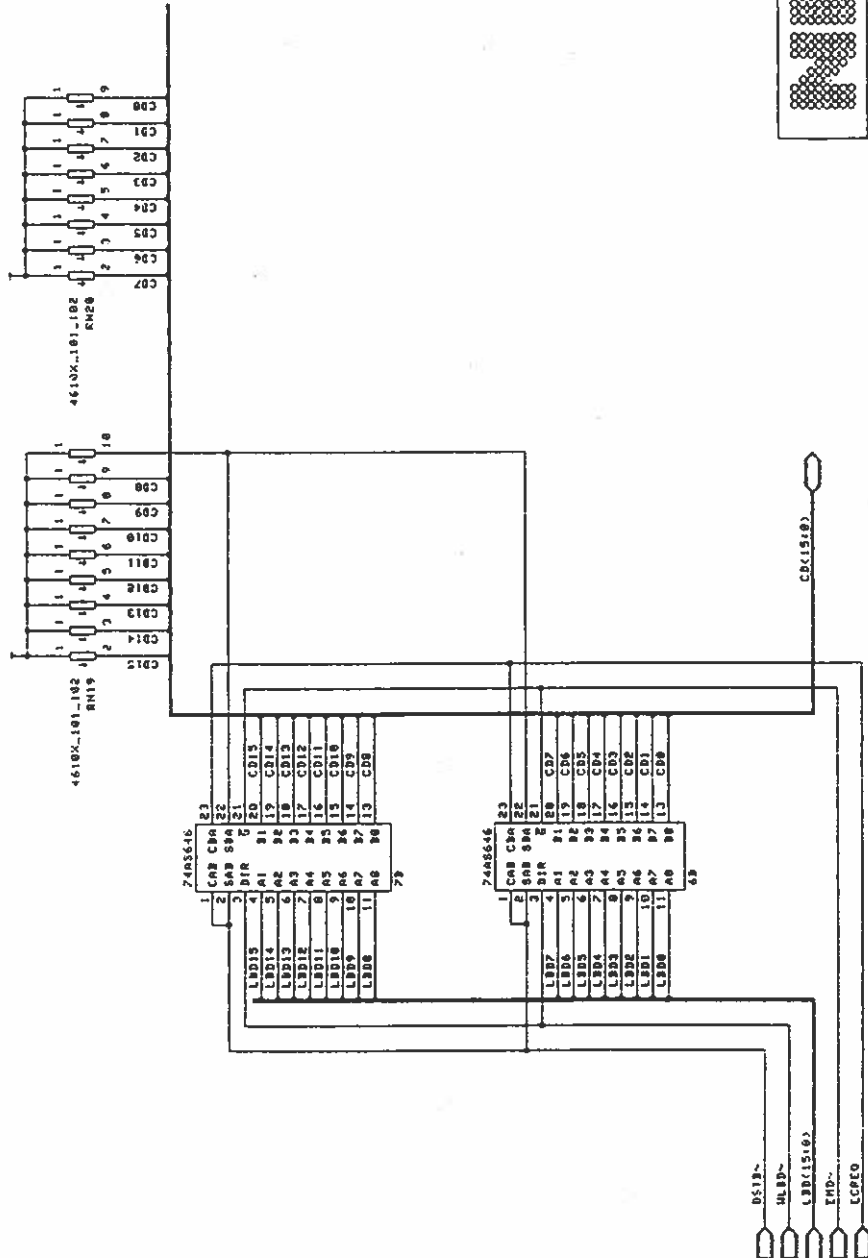


NORSK DATA A.S. OSLO NORWAY	
10 NO: 359082CA PRINT: 3282C	SHEET 6 OF 30
ND100 CPU-MEM BIT/BCIL/SYC	DESIGN: JLV/CJT BRUN: JLV/CJT DATE: 1 10/6-87
PCV1	

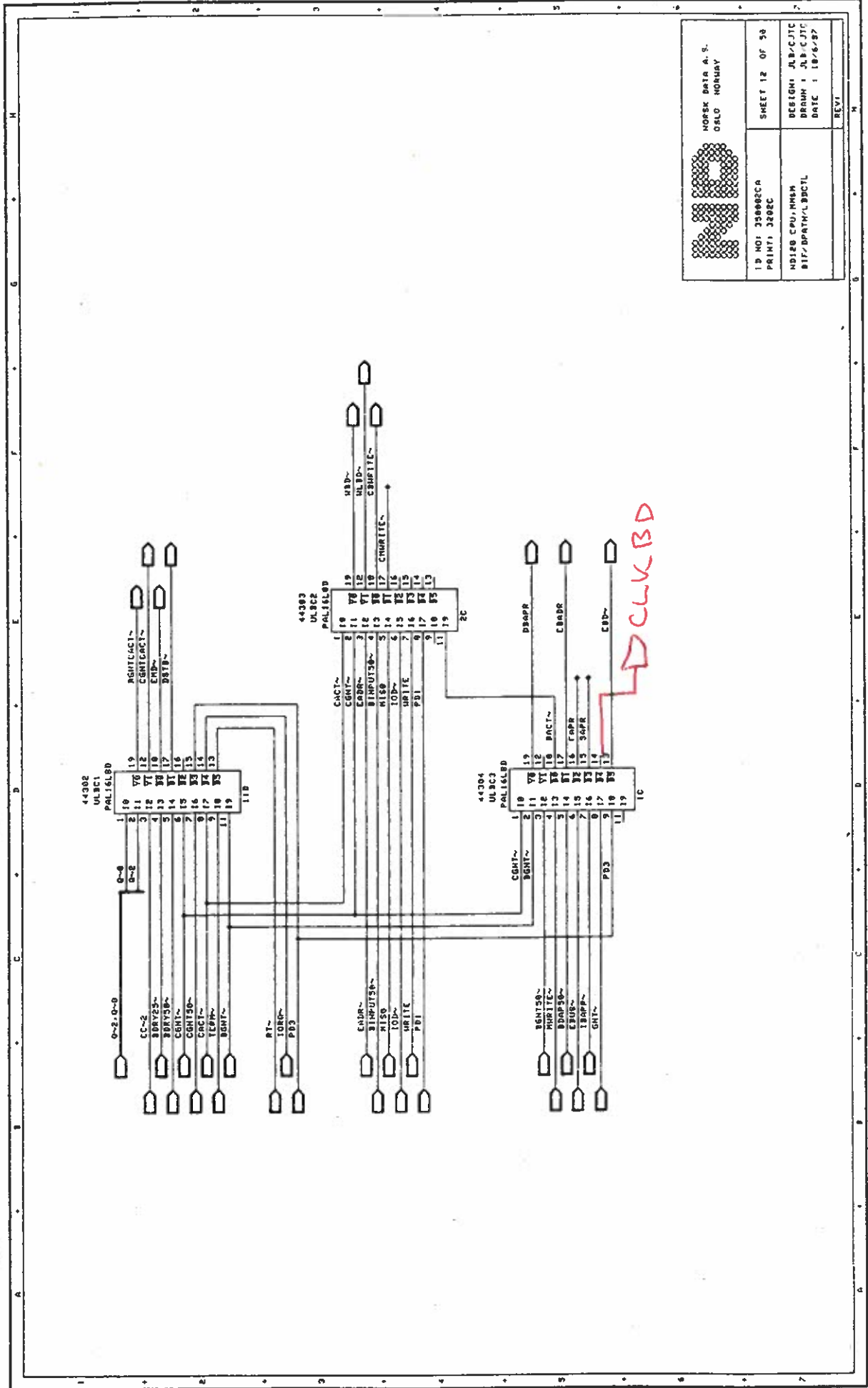


NORSEK DATA A.S. OSLO NORWAY	
ID NO: 350002CA PRINT: 3002C	SHEET 10 OF 50
WD100 CPU/MEM 31F/DPATH/30L3D	DESIGN: JLB-CJIC BRAUN: JLB-CJIC DATE: 10-6-87
REV:	

		NORSE DATA A.S. OSLO NORWAY	
19 NO: 350882CA PRINT: 3282C	SHEET 11 OF 50		
MD126 CPU, MMX BIT/DPATH/CL3D	DESIGN: JLB-CJTC DRAWM: JLB-CJTC DATE: 19-6-87		
DEVI		DEVI	



DS13-
 MD126-
 LBD(1510)
 TMD-
 LCPRO



		NORSK DATA A. S. OSLO NORWAY	
19 NO: 35882CA PRINT: 3282C		SHEET 12 OF 58	
ND126 CPU, NMS BIF/DPATH/LBDCIL		DESIGN: JLB/CJT DRAWN: JLB/CJT DATE: 18/6/87	
		REV:	

11B

11 10

LS04

74ALS534

BD-21

BD-20

BD-19

BD-18

BD-17

BD-16

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

74ALS534

BD-21

BD-20

BD-19

BD-18

BD-17

BD-16

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

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BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

74ALS534

BD-21

BD-20

BD-19

BD-18

BD-17

BD-16

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

74ALS534

BD-21

BD-20

BD-19

BD-18

BD-17

BD-16

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

BD-3

BD-2

BD-1

BD-0

BD-15

BD-14

BD-13

BD-12

BD-11

BD-10

BD-9

BD-8

BD-7

BD-6

BD-5

BD-4

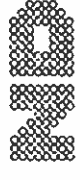
BD-3

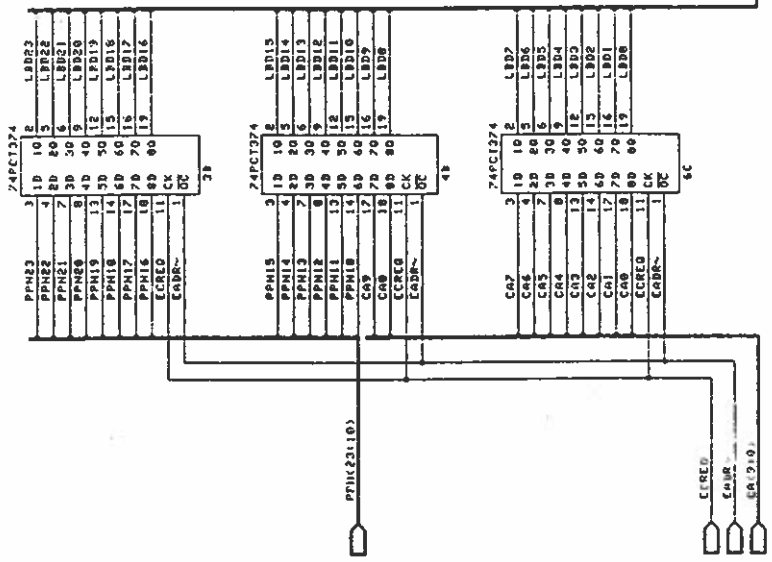
BD-2

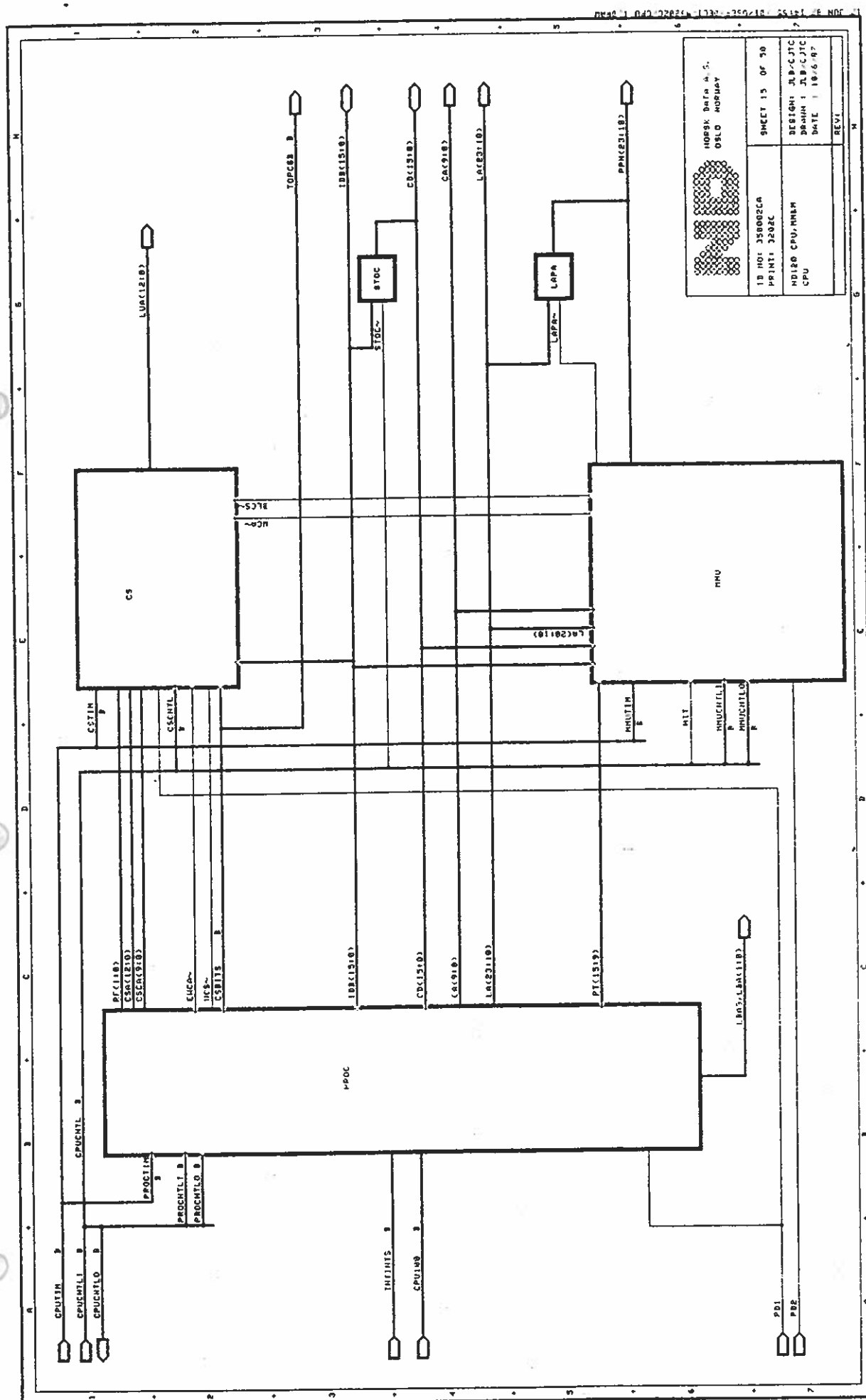
BD-1

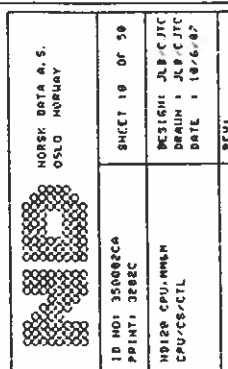
BD-0

HOPSK DATA A. S. OSLO NORWAY	
19 NO: 350082CA PRINT: 3802C	SHEET 13 OF 50
ND120 CPU, NHEM BIF/DPATH/PEBPCA	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 10/6/87
REVI	

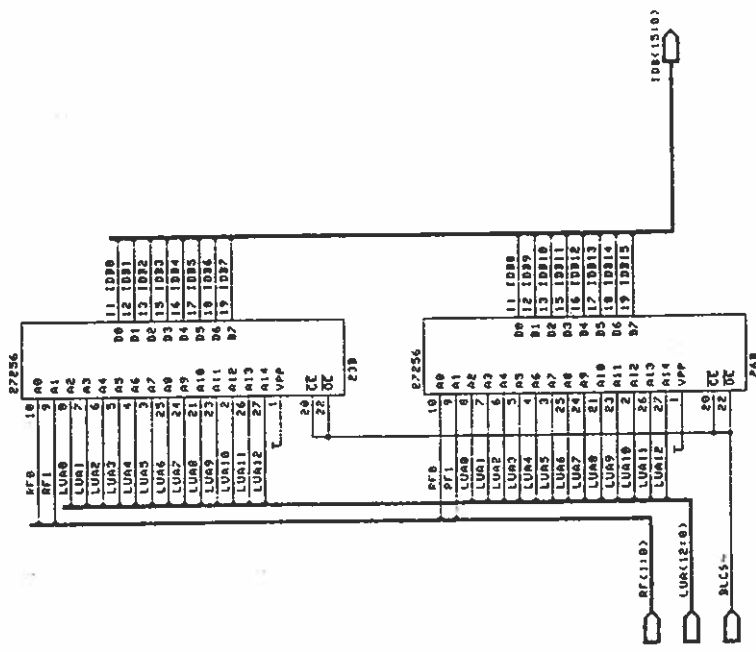
		NORSK DATA A.S. OSLO NORWAY	
ID NO: 175002CA PRINT: 3002C	SHEET 14 OF 20	DESIGN: JLB/CJC DRAWN: JLB/CJC DATE: 10/6/87	REV:



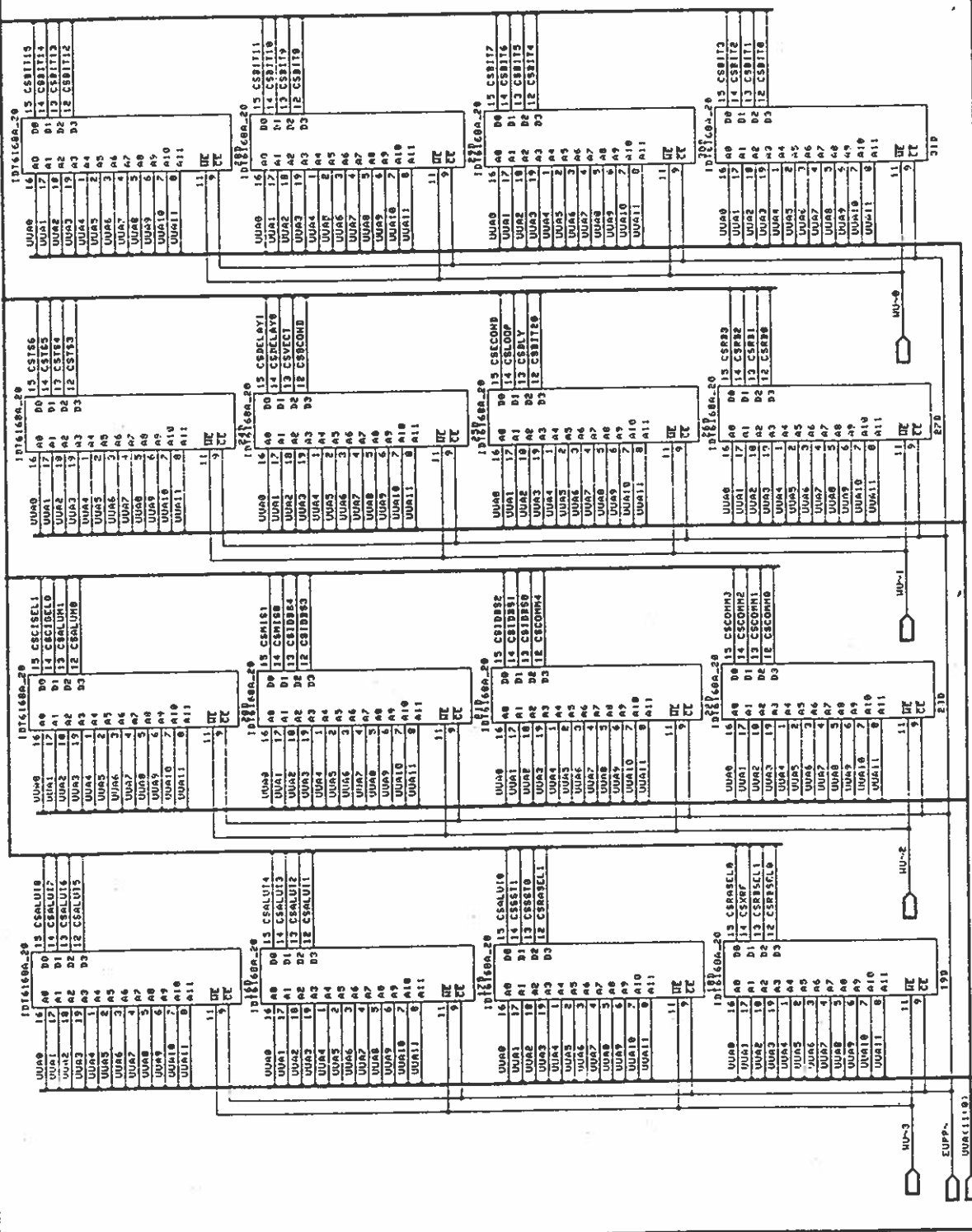


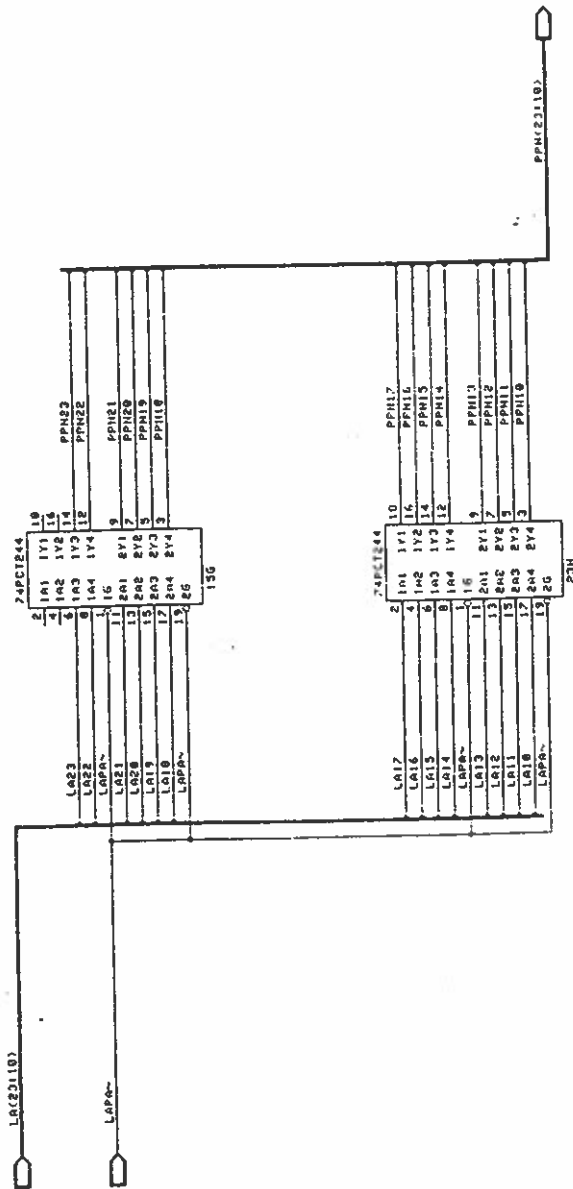


		NORSK DATA A.S. OSLO NORWAY	
ID NO: 358082CA PRINT: 322EC		SHEET 19 OF 50	
ND180 CPU, MEM CPU/CS/PROG		DESIGN: JLB/CJC DRAWN: JLB/CJC DATE: 1 18/6/87	
REV:		REV:	

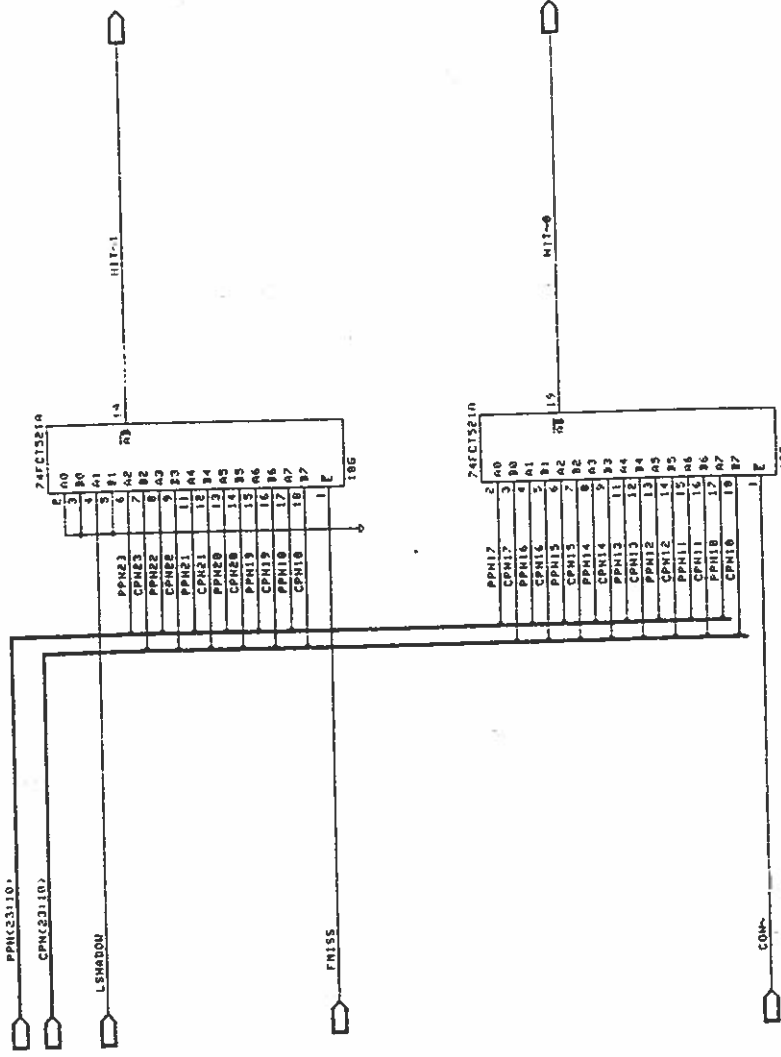


27256 10K(1510) 268



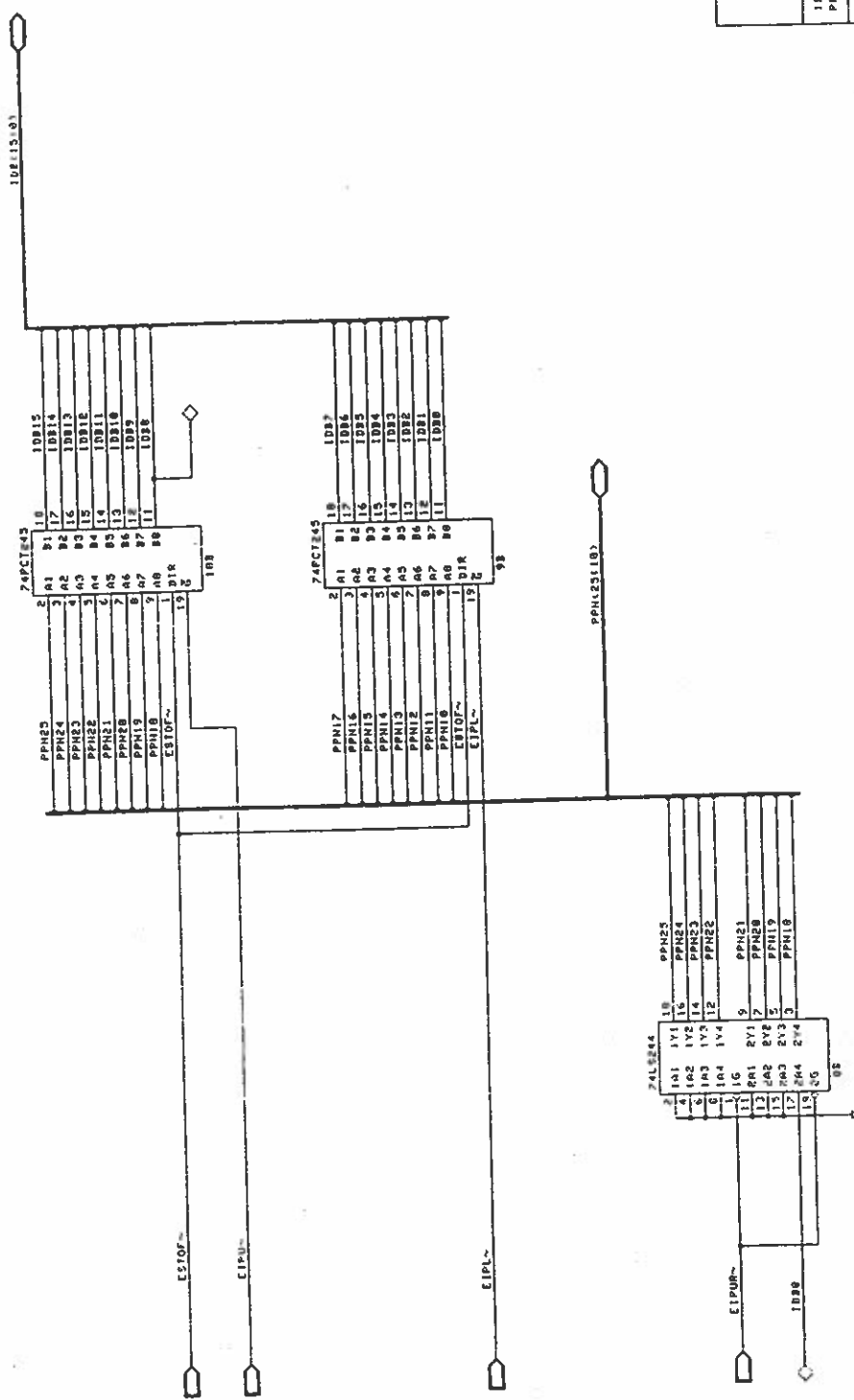


		NORSEK DATA A. S. OSLO NORWAY	
10 NO: 35002CA	PRINT: 3292C	SHEET 23 OF 90	
NO: 129 CPU/MEM	CPU/LAP	DESIGN: JLB-CJTC	
		DRAWN: JLB-CJTC	
		DATE: 1 10-9-87	
		REV: 1	



		NORSE DATA A.S. OSLO NORWAY	
ID NO: 35082C PRINT: 32DEC		SHEET 27 OF 58	
H0128 CPU/MH/M CPU/MH/MIT		DESIGN: J.B./C.J.C DRAWN: J.B./C.J.C DATE: 18/6/87	
REV:		REV:	

		ARMENIA REPUBLIC OF ARMENIA MINISTRY OF DEFENSE	
		SHEET 26 OF 30	
13 NO1 350002/A PRINT 3202C		DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 10/6/97	
13 NO1 350002/A PRINT 3202C		REV:	



ARMENIA REPUBLIC OF ARMENIA MINISTRY OF DEFENSE

LAC201102

LAC201102

THM2010B-25

LA10	0	00	00	PPH25
LA11	1	01	01	PPH24
LA12	2	02	02	PPH23
LA13	3	03	03	PPH22
LA14	4	04	04	PPH21
LA15	5	05	05	PPH20
LA16	6	06	06	PPH19
LA17	7	07	07	PPH18
LA18	8	08	08	PPH17
LA19	9	09	09	PPH16
LA20	10	10	10	PPH15

UNAP~
EPT~

20 00
21 00
18 00

236

THM2010B-25

LA10	0	00	00	PT15
LA11	1	01	01	PT14
LA12	2	02	02	PT13
LA13	3	03	03	PT12
LA14	4	04	04	PT11
LA15	5	05	05	PT10
LA16	6	06	06	PT09
LA17	7	07	07	PT08
LA18	8	08	08	PT07
LA19	9	09	09	PT06
LA20	10	10	10	PT05

UNAP~
EPT~

20 00
21 00
18 00

246

THM2010B-25

LA10	0	00	00	PPH17
LA11	1	01	01	PPH16
LA12	2	02	02	PPH15
LA13	3	03	03	PPH14
LA14	4	04	04	PPH13
LA15	5	05	05	PPH12
LA16	6	06	06	PPH11
LA17	7	07	07	PPH10
LA18	8	08	08	PPH09
LA19	9	09	09	PPH08
LA20	10	10	10	PPH07

UNAP~
EPT~

20 00
21 00
18 00

236

THM2010B-25

LA10	0	00	00	PT17
LA11	1	01	01	PT16
LA12	2	02	02	PT15
LA13	3	03	03	PT14
LA14	4	04	04	PT13
LA15	5	05	05	PT12
LA16	6	06	06	PT11
LA17	7	07	07	PT10
LA18	8	08	08	PT09
LA19	9	09	09	PT08
LA20	10	10	10	PT07

UNAP~
EPT~

20 00
21 00
18 00

236

THM2010B-25

PPH10	0	00	00	PPH10
PPH11	1	01	01	PPH11
PPH12	2	02	02	PPH12
PPH13	3	03	03	PPH13
PPH14	4	04	04	PPH14
PPH15	5	05	05	PPH15
PPH16	6	06	06	PPH16
PPH17	7	07	07	PPH17
PPH18	8	08	08	PPH18
PPH19	9	09	09	PPH19
PPH20	10	10	10	PPH20
PPH21	11	11	11	PPH21
PPH22	12	12	12	PPH22
PPH23	13	13	13	PPH23
PPH24	14	14	14	PPH24
PPH25	15	15	15	PPH25

UNAP~
EPT~

20 00
21 00
18 00

206

THM2010B-25

PPH10	0	00	00	PPH10
PPH11	1	01	01	PPH11
PPH12	2	02	02	PPH12
PPH13	3	03	03	PPH13
PPH14	4	04	04	PPH14
PPH15	5	05	05	PPH15
PPH16	6	06	06	PPH16
PPH17	7	07	07	PPH17
PPH18	8	08	08	PPH18
PPH19	9	09	09	PPH19
PPH20	10	10	10	PPH20
PPH21	11	11	11	PPH21
PPH22	12	12	12	PPH22
PPH23	13	13	13	PPH23
PPH24	14	14	14	PPH24
PPH25	15	15	15	PPH25

UNAP~
EPT~

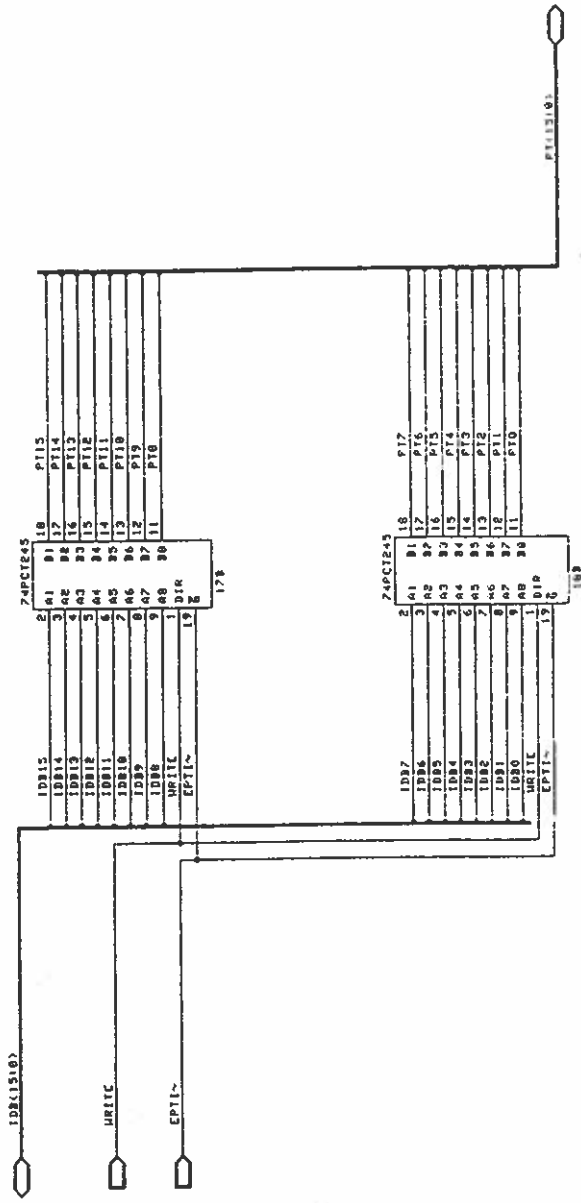
20 00
21 00
18 00

236

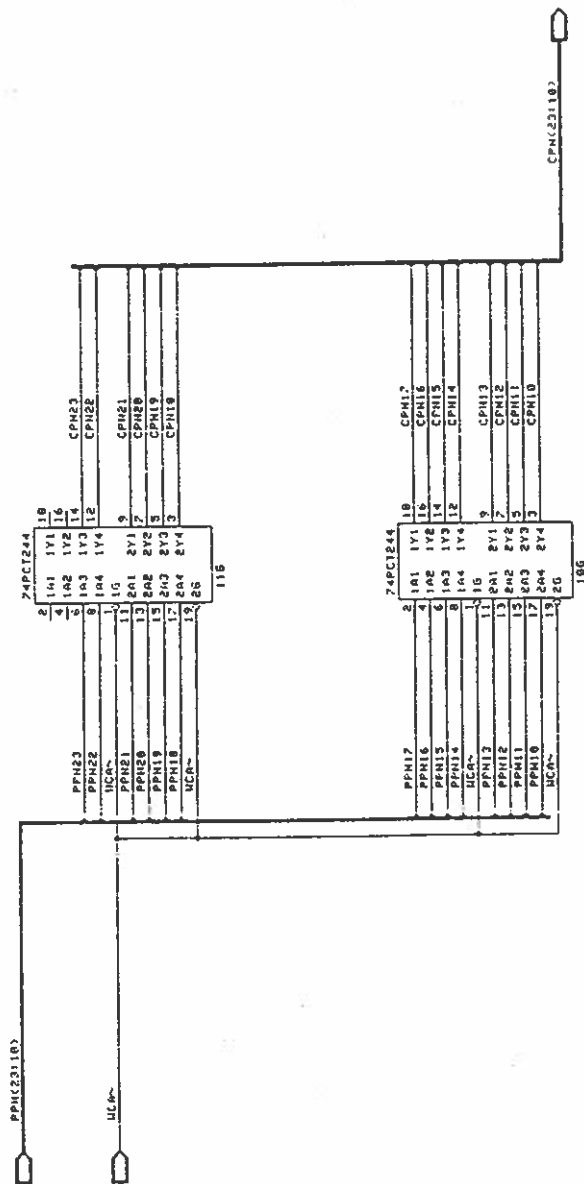


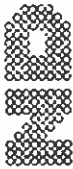
NOPEK DATA A. S.
OSLO NORMAY

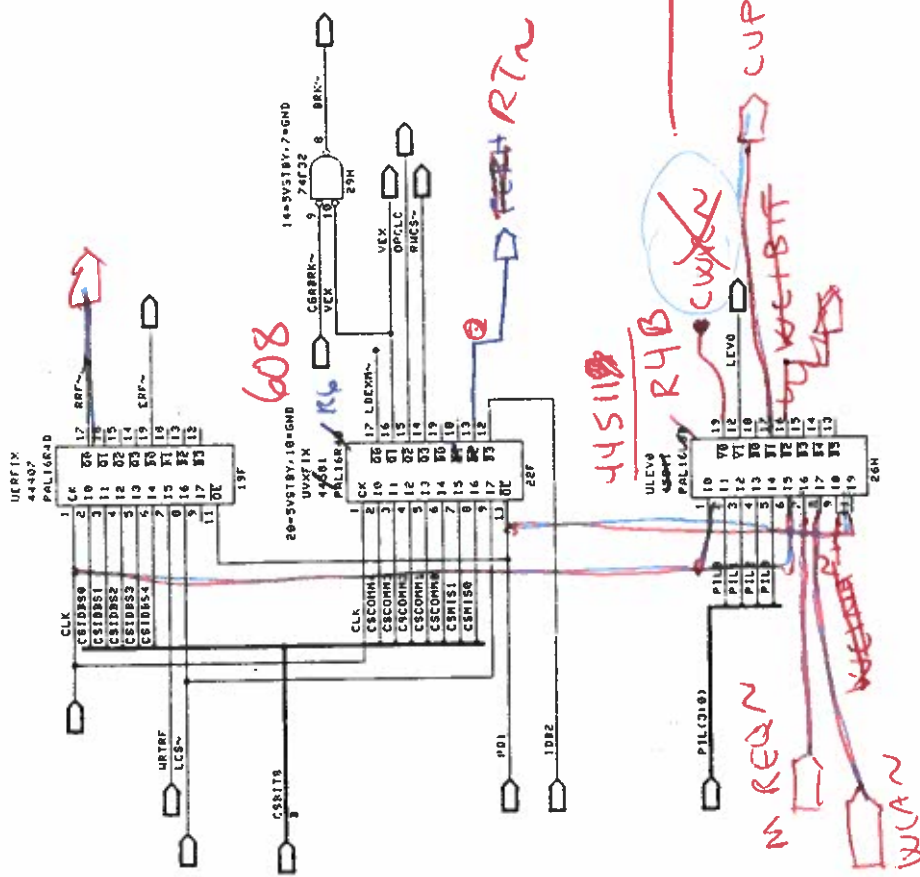
ID NO: 370002CA	SHEET 29 OF 50
PRINT: 3202C	DESIGN: J3-CJIC
ND100 CPU/MEM	DATE: 10/6/07
CPU/MEM/PT	REV:



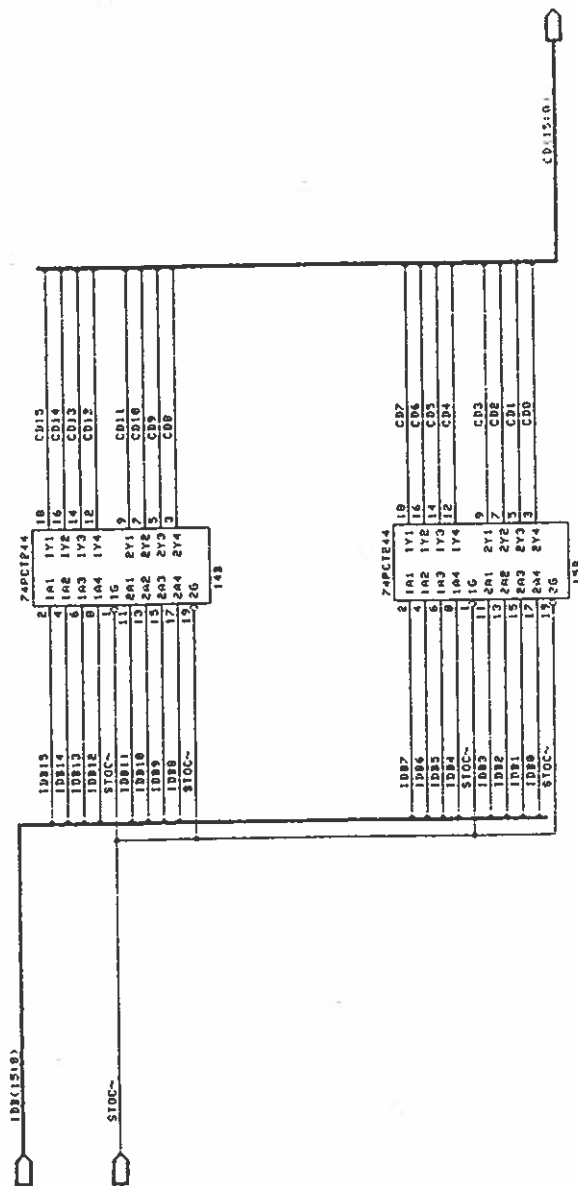
		HØREK DATA A.S. OSLO NORWAY	
ID NO: 350002CA PRINT: 2202C	SHEET 30 OF 30		
NO: 28 CPU/MMSH CPU/MMSH/PT100	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 10/6/87		
		REV:	



		HORSX DATA 4.5. OSLO NORWAY	
ID NO: 330802CA PRINT: 3205C	SHEET 31 OF 38		
MB128 CPU/MNH CPU/MNH/DCA	DESIGN: JL8-CJTC DRAWN: JL8-CJTC DATE: 10-6-87		
			REV:



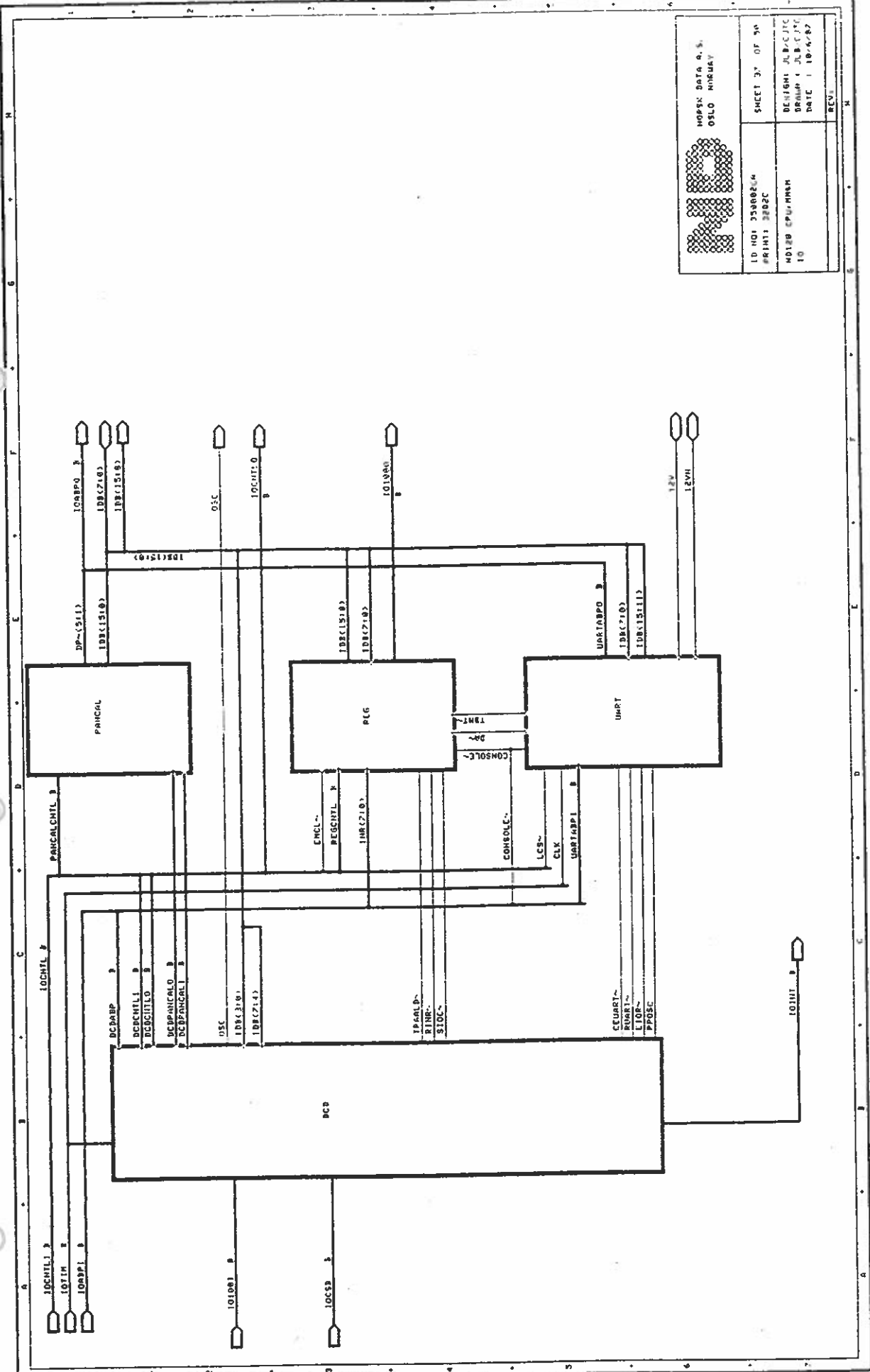
		HOREK DATA A.S. OSLO NORWAY	
10 NO 350000CA PRINT: 3282C	SHEET 34 OF 59		DESIGN: J.B./C.J.C. DRAWN: J.B./C.J.C. DATE: 1.10.87
NO 350000CA CPU/PROC/CMBDEC	REV:		

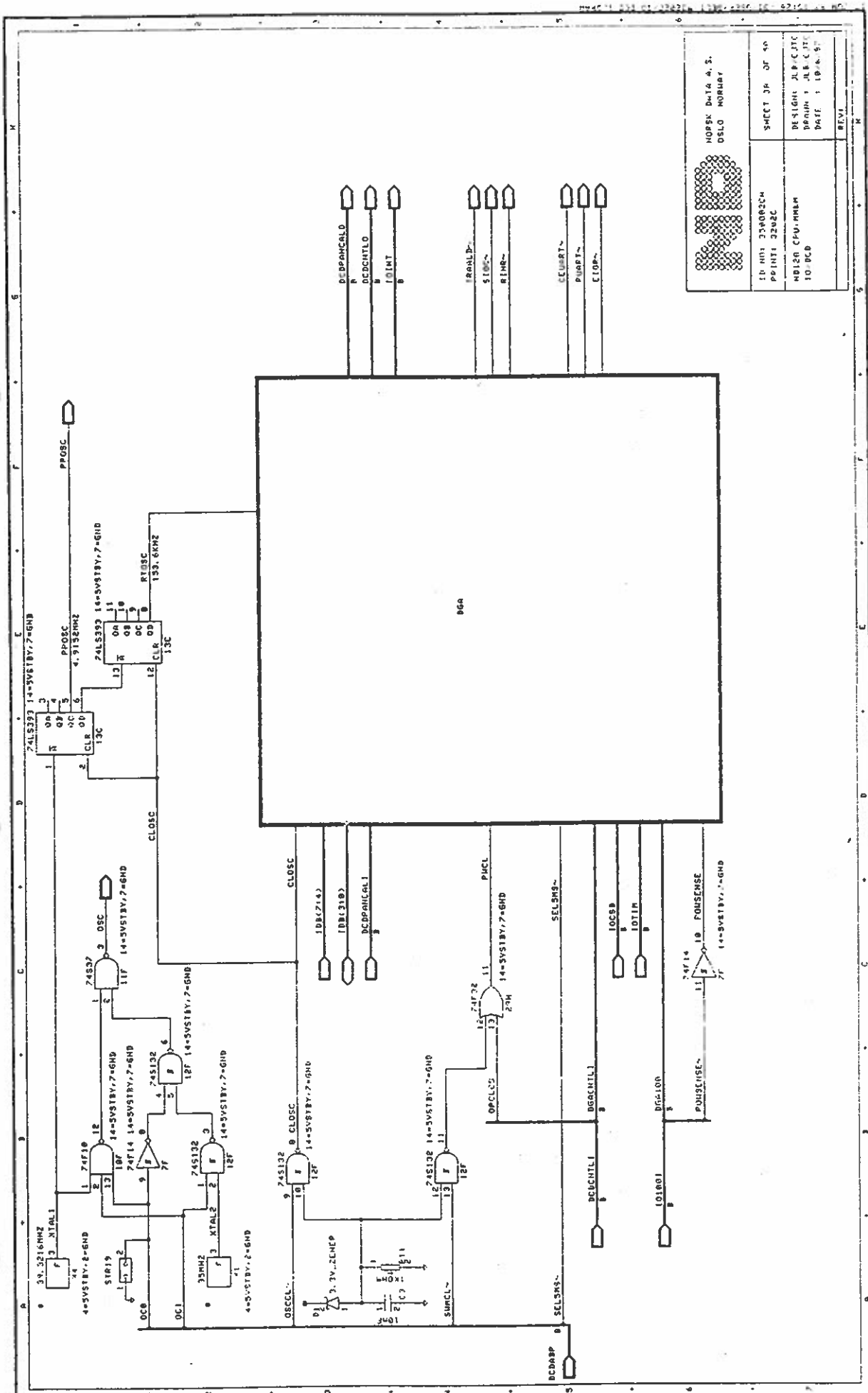


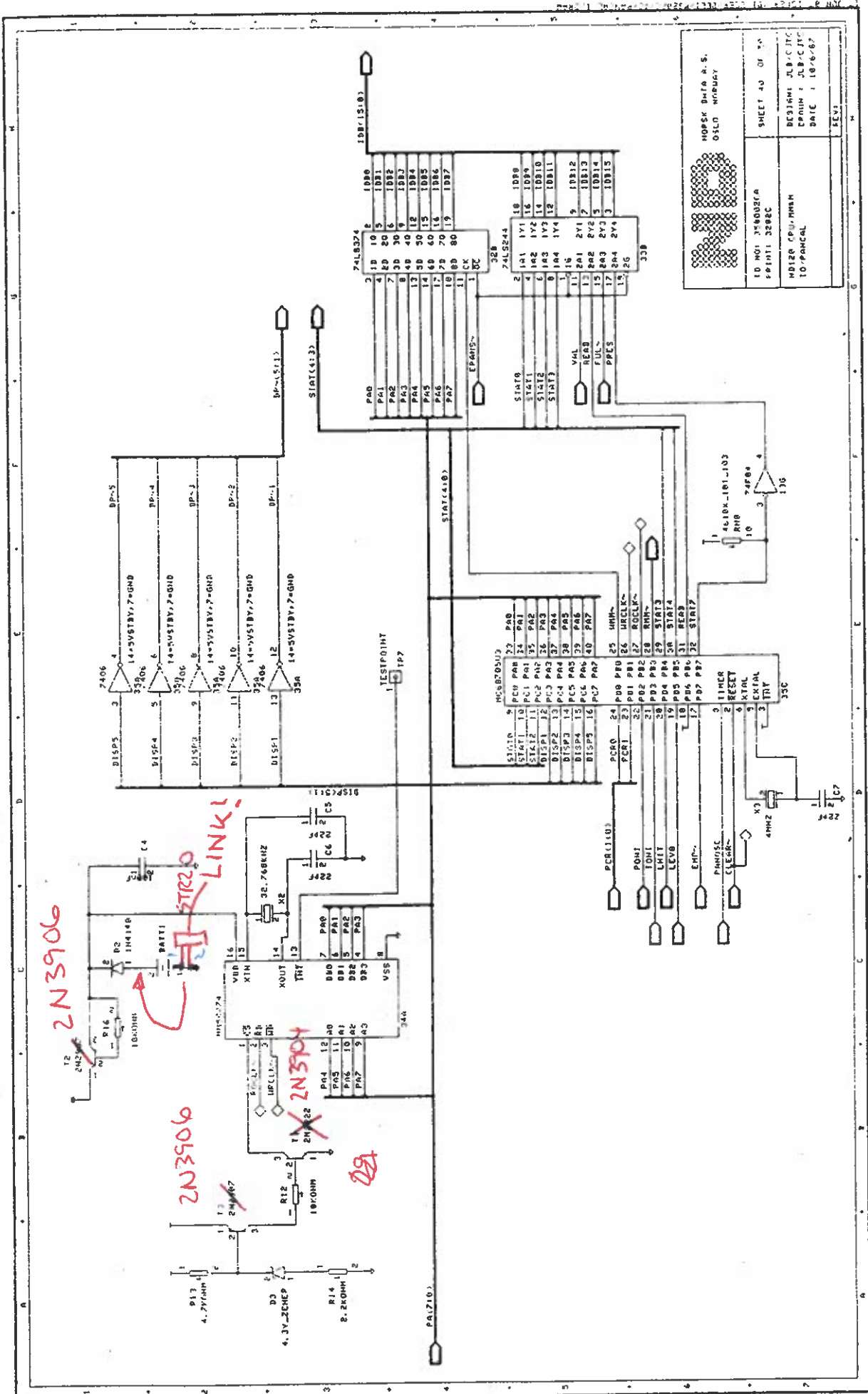


NO. 101 258022-4

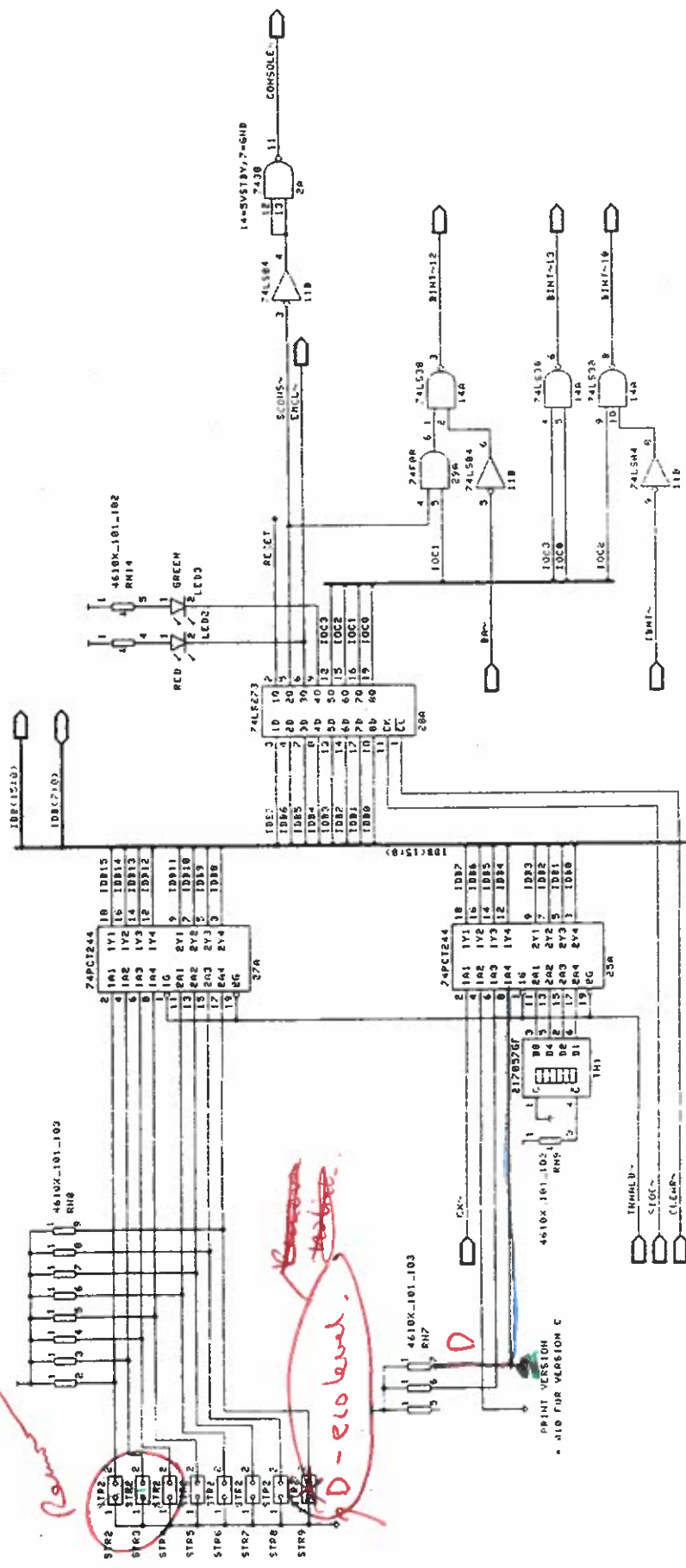
HOPKINSON DATA 9, S. OSLO NORWAY	
10101 258022-4 PRINT: 3202C	SHEET 37 OF 39
10101 CPU: MMSH TO	DESIGN: JLB/CJT DRAWN: JLB/CJT DATE: 10/6/87
REV:	



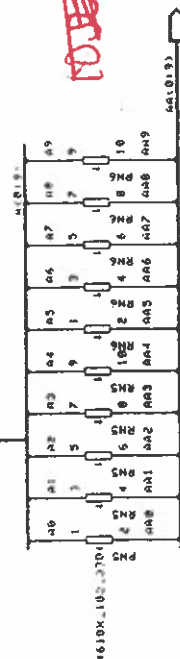




HOPKIN DATA A.S.	
OSLO MEMO	
10 101 1140057A	SHEET 40 OF 50
10 101 1140057A	DESIGN: JLB-C/JC
10 101 1140057A	CONTR: JLB-C/JC
10 101 1140057A	DATE: 1/18/67
10 101 1140057A	REV: 1

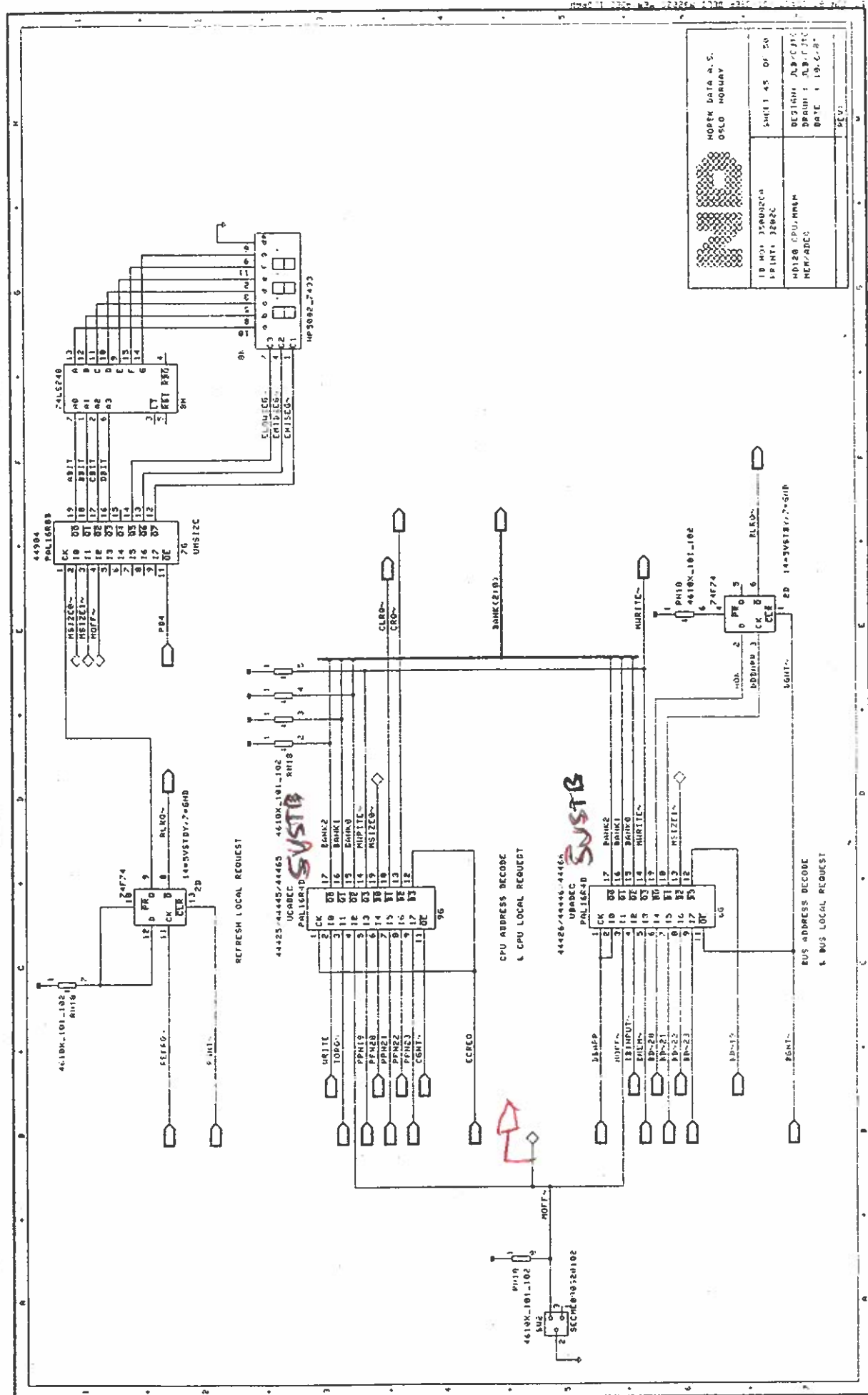


NORBIT DATA	
DATE 10/1/73	
TIME 4:10 PM	
1B 101 374007M	PRINT 1202C
HEISEN CPU-MEM	TO REG
DATE 10/1/73	DEV

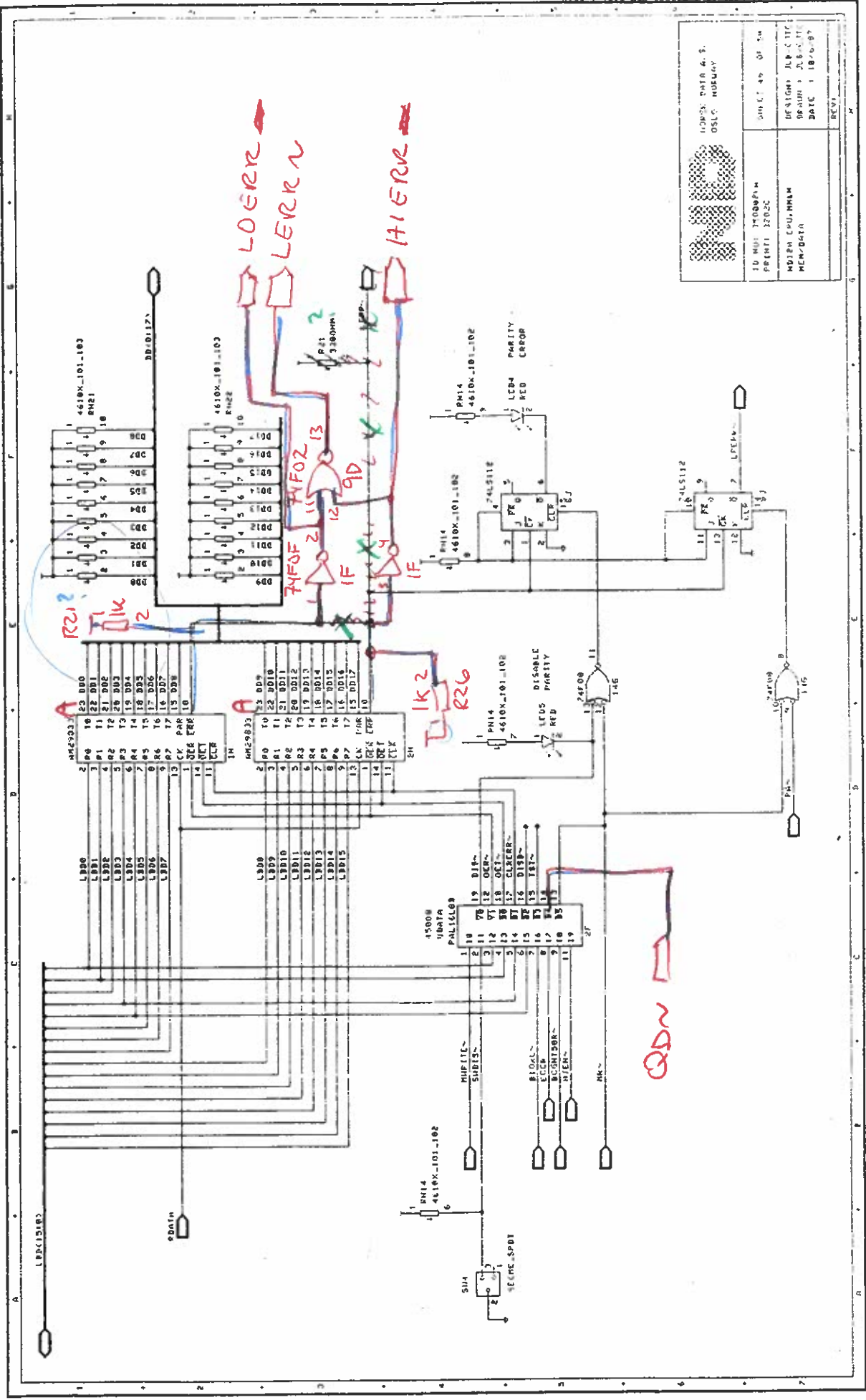


~~10/20/2017~~

	ID NO: 356002LA PRINT: 2822	SHEET 44 OF 50	WOSP DATA A.S. OSLO NORWAY
40120 CPU/MEM MEM ADDR	DESIGN: JLB-CJTC DRAWN: JLB-CJTC DATE: 10-6-82	40120 CPU/MEM MEM ADDR	40120 CPU/MEM MEM ADDR



HOPEN DATA 2.5. OSLO NORWAY	
10 NOV 1982	PRINT 1200
NOV 1982	NEW/ABC
SHEET 1.45 OF 50	DESIGN: ALB-CAT
	DATE: 19.6.82
	REV:



		LOWEN DATA 4. S. OSLO NORWAY	
10 M01 14000P/M	PRINT 12020	DATE 1 18/6-97	REV 1
MEMO CPU/MEM		DESIGNER JLB-CIT	
MEMO DATA		DATE 1 18/6-97	

4610X-101-222
RH4

CENTSON

HIER
HAXEN
LOGEN

FATCH

CORR

74PC1374
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100 10 2 10 15

PEARL REGISTER

4610X-101-102
PH23

4610X-101-102
PH24

4610X-101-102
PH25

45049
UCBROW
PALICLB
1 10 19
2 10 19
3 10 19
4 10 19
5 10 19
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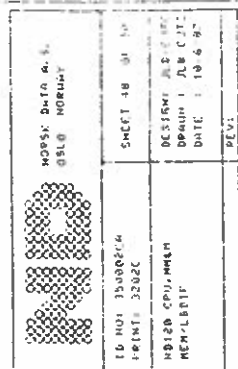
WORK DATA & S.
OSLO NORWAY

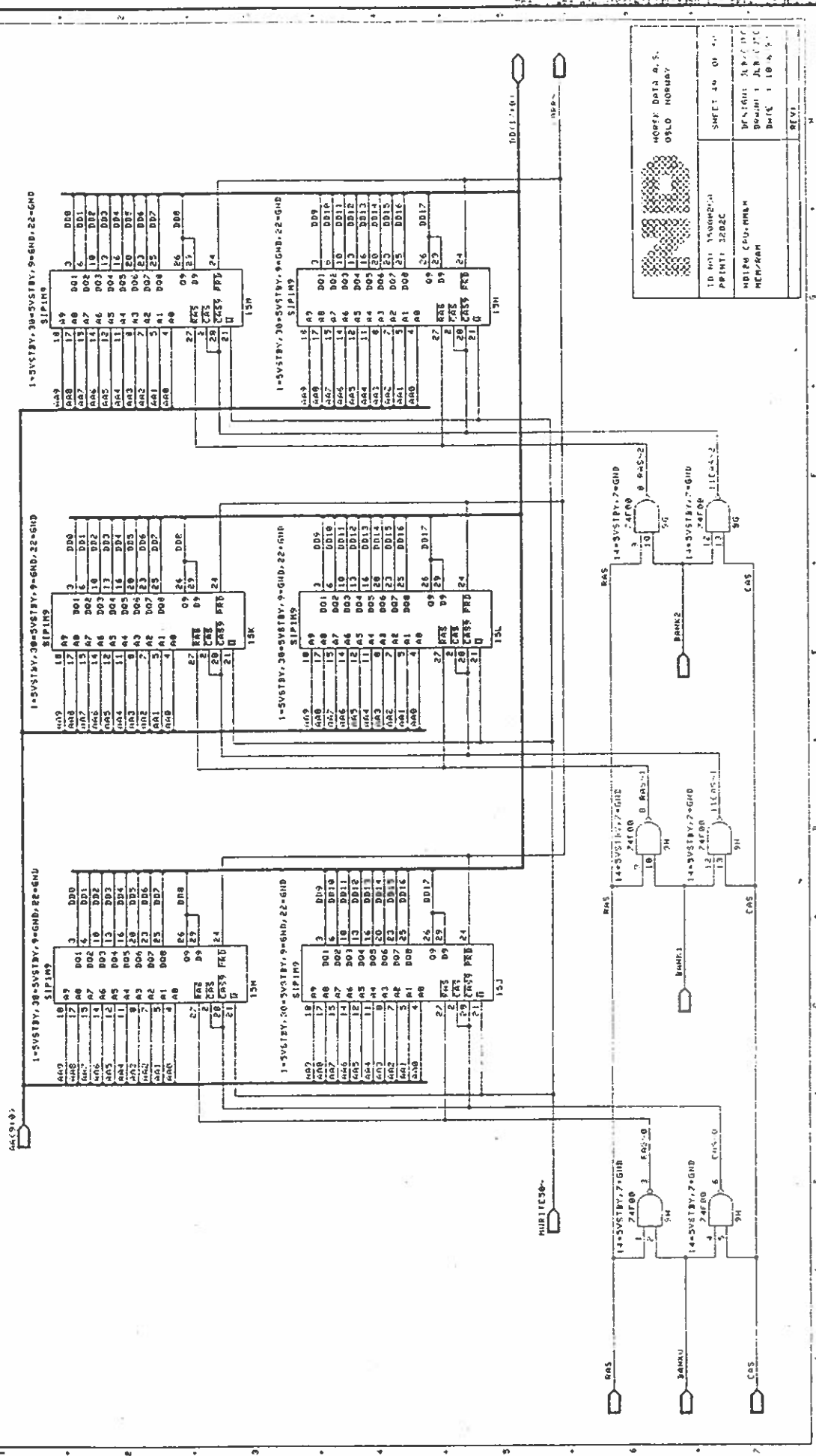
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PRINT 12620

DESIGN JLB-CJC
DRAWN JLB-CJC
DATE 10-1-57

SHEET 47 OF 47

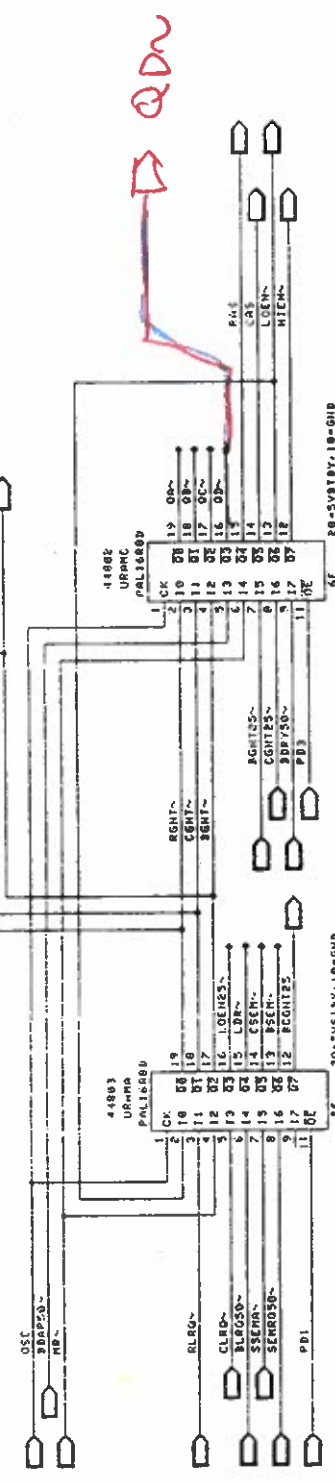
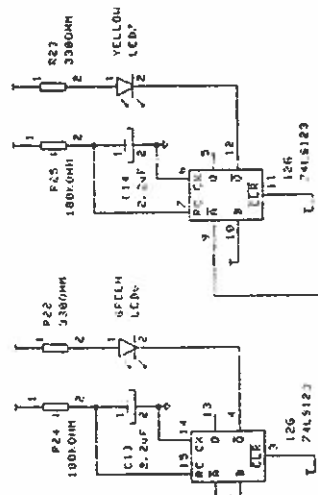
PEL





CPU GRANT
INDICATOR

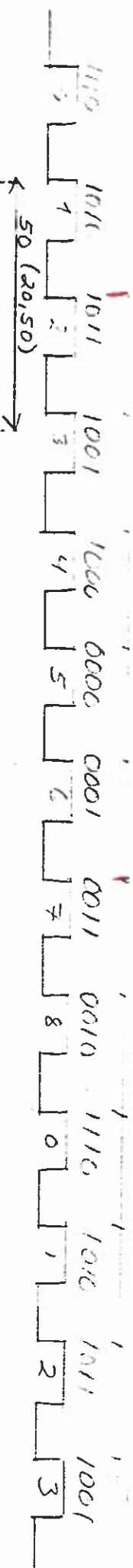
BUS GRANT
INDICATOR



CPU GRANT

BUS GRANT

		HOPE: Data M. S. ONLY NUMBER	
10 M01 35000250	PRINT 2202	SHEET 50 OF 50	
HE120 CPU-MEM		DESIGN: J.B.C.J.C	
HEM-RANC		EAMIN: J.B.C.J.C	
		DATE: 10/6/82	
		REV: 1	



Row Col

AS[~] AS[~]

AS[~] AS[~]

AS[~] AS[~]

CAS[~] setup before RAS[~] : 0 (10)

KITE ??

OUT

ENDATAEN

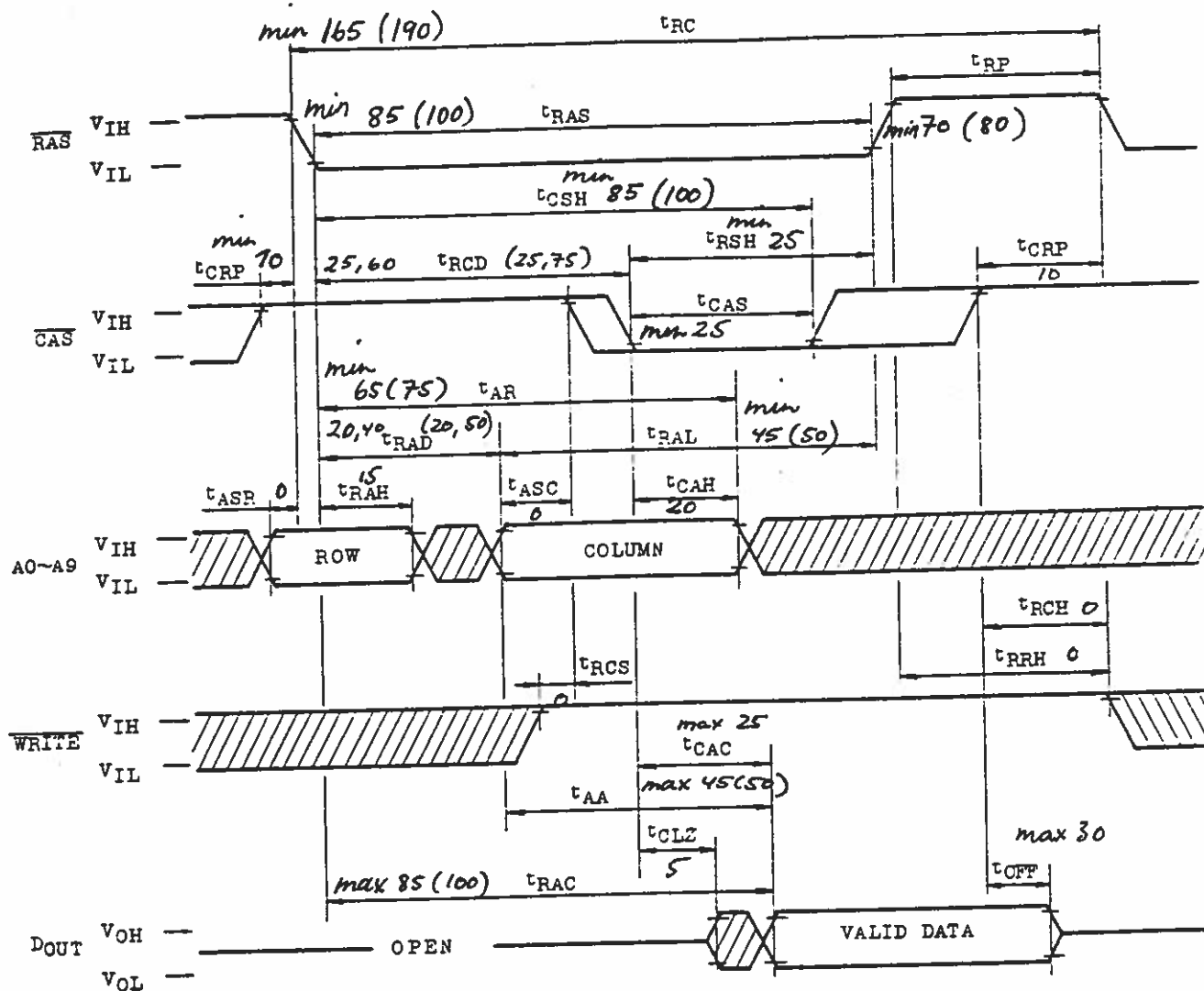
DATA VALID (lock) max 100 max 25 data valid OPEN

DATA (particls clock = BDRY (read))

DRY (write) ??

85 ns (100 ns)

TIMING WAVEFORMS

READ CYCLE

: "H" or "L"

NOTE: "TF" pin should be connected to V_{IL} level or open, if "Test Mode" is not used.

EJC-TC511000P/J/Z-85-6

1987-04-01

TOSHIBA CORPORATION





CC
 C
 C SIGLISTE EXTRACTOR VERS. 870225
 C
 C USER: /D1/USER/DELI/M3202C
 C OPTION:4 DATE: 16-JUN-1987 19:09
 C REGISTERED 933 DIFFERENT SIGNALS
 C 1 ERRORS, 0 WARNINGS DETECTED,
 C 3 SIGNALS NOT PROCESSED. TOO MANY ENTRIES
 CCC

END:

ERROR. 3 OVERFLOWS IN SIGNAL CONNECTIONS

PG NO: PAGE: BLK NO: BLOCK:

1	1.DRAW	1	-
2	2.DRAW	1	-
3	3.DRAW	1	-
4	4.DRAW	1	-
5	1.DRAW	2	-/BIF
6	1.DRAW	3	-/BIF/BCTL
7	1.DRAW	4	-/BIF/BCTL/BDRV
8	1.DRAW	5	-/BIF/BCTL/SYNC
9	1.DRAW	6	-/BIF/DPATH
10	1.DRAW	7	-/BIF/DPATH/BDLBD
11	1.DRAW	8	-/BIF/DPATH/CDLBD
12	1.DRAW	9	-/BIF/DPATH/LBDCTL
13	1.DRAW	10	-/BIF/DPATH/PESPEA
14	1.DRAW	11	-/BIF/DPATH/PPNLBD
15	1.DRAW	12	-/CPU
16	1.DRAW	13	-/CPU/CS
17	1.DRAW	14	-/CPU/CS/ACAL
18	1.DRAW	15	-/CPU/CS/CTL
19	1.DRAW	16	-/CPU/CS/PROM
20	1.DRAW	17	-/CPU/CS/TCV
21	1.DRAW	18	-/CPU/CS/WCS
22	2.DRAW	18	-/CPU/CS/WCS
23	1.DRAW	19	-/CPU/LAPA
24	1.DRAW	20	-/CPU/MMU
25	1.DRAW	21	-/CPU/MMU/CACHE
26	1.DRAW	22	-/CPU/MMU/CSR
27	1.DRAW	23	-/CPU/MMU/HIT
28	1.DRAW	24	-/CPU/MMU/PPNX
29	1.DRAW	25	-/CPU/MMU/PT
30	1.DRAW	26	-/CPU/MMU/PTIDB
31	1.DRAW	27	-/CPU/MMU/WCA
32	1.DRAW	28	-/CPU/PROC
33	1.DRAW	29	-/CPU/PROC/CGA
34	1.DRAW	30	-/CPU/PROC/CMDDEC
35	1.DRAW	31	-/CPU/STOC
36	1.DRAW	32	-/CYC
37	1.DRAW	33	-/IO
38	1.DRAW	34	-/IO/DCD
39	1.DRAW	35	-/IO/DCD/DGA
40	1.DRAW	36	-/IO/PANCAL
41	1.DRAW	37	-/IO/REG
42	1.DRAW	38	-/IO/UART
43	1.DRAW	39	-/MEM
44	1.DRAW	40	-/MEM/ADDR
45	1.DRAW	41	-/MEM/ADEC
46	1.DRAW	42	-/MEM/DATA
47	1.DRAW	43	-/MEM/ERROR
48	1.DRAW	44	-/MEM/LBDIF
49	1.DRAW	45	-/MEM/RAM
50	1.DRAW	46	-/MEM/RAMC

C ***** SIGNAL NAME INFO *****

SIGNAL	#'s	SIGTYPE	DIRECT: PAGE+QUADR/COMP-PIN/TYPE
12V	13		B:2F1/A-C31!! B:2F2/RN2-1/4610X 101 102! B:2F2/RN2-1/4610X 101 102! B:2F2/RN3-1/4610X 101 102! B:2G2/RN2-1/4610X 101 102! B:2G2/RN2-1/4610X 101 102! B:2G2/RN2-1/4610X 101 102! O:42E2/34H-11/VP12/12! O:42E2/34H-14/VP12/12! B:42F1/C9-1/2.2uF! I:42E4/35G-8/75150P B:42E5/R9-1/2.2KOHM! B:42E5/R10-1/2.2KOHM!
12VN	5		O:2D5/A-A8!! O:42E2/34H-2/VP12/12! O:42E2/34H-23/VP12/12! B:42F2/C10-2/2.2uF! I:42E4/35G-5/75150P

5VSTBY	70	\$SOVERFLOW\$ B:2E2/RN1-1/4610X 101 102! B:2E2/RN1-1/4610X 101 102! B:2E2/RN1-1/4610X 101 102! B:2E2/RN1-1/4610X 101 102! B:2D2/RN1-1/4610X 101 102! B:2D2/RN1-1/4610X 101 102! I:2A5/R8-1/1KOHM B:2B1/A-C24/I I:3A7/R4-1 1KOHM
		B:4G2/C-A30/I B:4G2/C-B30/I B:4G2/C-C30/I B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H2/RN10-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:32H4/RN11-1/4610X 101 102! B:38A3/D1-2.3.3V ZENER! I:39A4/RN17-1/4610X 101 103 I:39A4/RN17-1/4610X 101 103 I:39A4/RN17-1/4610X 101 103 I:39A4/RN17-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39A1/RN15-1/4610X 101 103 I:39B1/RN15-1/4610X 101 103 I:39C7/34D-17/ND DELDGA I:39C7/34D-C7/ND DELDGA
		I:39A3/RN16-1/4610X 101 103 I:39A3/RN16-1/4610X 101 103 I:39A3/RN16-1/4610X 101 103 I:39A3/RN16-1/4610X 101 103
A0	#44 2	I:44D6/RN5-1/4610X 102 330 B:44D4/5H-23/AM29861A!
A1	#44 2	I:44E6/RN5-3/4610X 102 330 B:44D4/5H-22/AM29861A!
A2	#44 2	I:44E6/RN5-5/4610X 102 330 B:44D4/5H-21/AM29861A!
A3	#44 2	I:44E6/RN5-7/4610X 102 330 B:44D4/5H-20/AM29861A!
A4	#44 2	I:44E6/RN5-9/4610X 102 330 B:44D4/5H-19/AM29861A!
A5	#44 2	I:44E6/RN6-1/4610X 102 330 B:44D4/5H-18/AM29861A!
A6	#44 2	I:44E6/RN6-3/4610X 102 330 B:44D4/5H-17/AM29861A!
A7	#44 2	I:44F6/RN6-5/4610X 102 330 B:44D4/5H-16/AM29861A!
A8	#44 2	I:44F6/RN6-7/4610X 102 330 B:44D4/5H-15/AM29861A!
A9	#44 2	I:44F6/RN6-9/4610X 102 330 B:44D4/5H-14/AM29861A!
AA0	7	O:44D6/RN5-2/4610X 102 330! I:49C3/15H-4/SIP1M9 I:49C5/15J-4/SIP1M9 I:49E3/15K-4/SIP1M9 I:49E5/15L-4/SIP1M9 I:49G5/15N-4/SIP1M9 I:49G3/15M-4/SIP1M9
AA1	7	O:44E6/RN5-4/4610X 102 330! I:49C3/15H-5/SIP1M9 I:49C5/15J-5/SIP1M9 I:49E3/15K-5/SIP1M9 I:49E5/15L-5/SIP1M9 I:49G5/15N-5/SIP1M9 I:49G3/15M-5/SIP1M9
AA2	7	O:44E6/RN5-6/4610X 102 330! I:49C3/15H-7/SIP1M9 I:49C5/15J-7/SIP1M9 I:49E3/15K-7/SIP1M9 I:49E5/15L-7/SIP1M9 I:49G5/15N-7/SIP1M9 I:49G3/15M-7/SIP1M9
AA3	7	O:44E6/RN5-8/4610X 102 330! I:49C3/15H-8/SIP1M9 I:49C5/15J-8/SIP1M9 I:49E3/15K-8/SIP1M9 I:49E5/15L-8/SIP1M9 I:49G5/15N-8/SIP1M9 I:49G3/15M-8/SIP1M9
AA4	7	O:44E6/RN5-10/4610X 102 330! I:49C3/15H-11/SIP1M9 I:49C5/15J-11/SIP1M9 I:49E3/15K-11/SIP1M9 I:49E5/15L-11/SIP1M9 I:49G5/15N-11/SIP1M9 I:49G3/15M-11/SIP1M9
AA5	7	O:44E6/RN6-2/4610X 102 330! I:49C3/15H-12/SIP1M9 I:49C5/15J-12/SIP1M9 I:49E3/15K-12/SIP1M9 I:49E5/15L-12/SIP1M9 I:49G5/15N-12/SIP1M9 I:49G3/15M-12/SIP1M9
AA6	7	O:44E6/RN6-4/4610X 102 330! I:49C3/15H-14/SIP1M9 I:49C5/15J-14/SIP1M9 I:49E3/15K-14/SIP1M9 I:49E5/15L-14/SIP1M9 I:49G5/15N-14/SIP1M9 I:49G3/15M-14/SIP1M9
AA7	7	O:44F6/RN6-6/4610X 102 330! I:49C3/15H-15/SIP1M9 I:49C5/15J-15/SIP1M9 I:49E3/15K-15/SIP1M9 I:49E5/15L-15/SIP1M9 I:49G5/15N-15/SIP1M9 I:49G3/15M-15/SIP1M9
AA8	7	O:44F6/RN6-8/4610X 102 330! I:49C3/15H-17/SIP1M9 I:49C5/15J-17/SIP1M9 I:49E3/15K-17/SIP1M9 I:49E5/15L-17/SIP1M9 I:49G5/15N-17/SIP1M9 I:49G3/15M-17/SIP1M9
AA9	7	O:44F6/RN6-10/4610X 102 330! I:49C3/15H-18/SIP1M9 I:49C5/15J-18/SIP1M9 I:49E3/15K-18/SIP1M9 I:49E5/15L-18/SIP1M9 I:49G5/15N-18/SIP1M9 I:49G3/15M-18/SIP1M9
ABIT	#45 2	T:45E2/7G-19/PAL16R8B! I:45F2/8H-7/74LS248
ACOND	2	O:33B7/28F-J2/ND DELILAH! I:36B5/14D-6/PAL16R4D
ACT	#6 1	T:6D2/10D-18/PAL16R8D!
ALUCLK	3	I:33B7/28F-B9/ND DELILAH I:33A5/7F-5/74F14 O:36F2/9D-1/74F02!
AOK	#45 2	B:45C6/6G-19/PAL16R4D! I:45E7/2D-2/74F74
APR	2	B:6D4/5D-19/PAL16R4D! I:7D7/7A-11/7407
BACT	#12 2	I:12E4/2C-11/PAL16L8D B:12D6/1C-18/PAL16L8D!
BANK0	5	T:45C6/6G-15/PAL16R4D! T:45C4/9G-15/PAL16R4D! O:45E3/RN18-4/4610X 101 102! I:49B6/9H-2/74F00 I:49B7/9H-4/74F00
BANK1	5	T:45C6/6G-16/PAL16R4D! T:45C4/9G-16/PAL16R4D! O:45D3/RN18-3/4610X 101 102! I:49D6/9H-10/74F00 I:49D7/9H-12/74F00
BANK2	5	T:45C6/6G-17/PAL16R4D! T:45C4/9G-17/PAL16R4D! O:45D3/RN18-2/4610X 101 102! I:49F6/8G-10/74F00 I:49F7/8G-12/74F00
BAPR	3	I:4C6/5C-17/74F244 B:4A6/C-A20/I O:7D7/7A-10/7407!
BBIT	#45 2	T:45E2/7G-18/PAL16R8B! I:45F2/8H-1/74LS248
BCGNT25	2	I:48C4/13F-11/AM29C821 T:50B6/5F-12/PAL16R8D!
BCGNT50	4	I:44B5/4H-13/AM29C821 I:44B2/3H-13/AM29C821
BCGNT50R	2	I:47D7/4F-3/PAL16L8B O:48C4/13F-14/AM29C821! I:46C5/2F-9/PAL16L8B O:48E4/3F-19/PAL16L8D!

BDAP25~	#8	2	0:8C3/3D-15/AM29C821! I:8E3/4D-10/AM29C821
BDAP50~		4	0:8E3/4D-15/AM29C821! I:12D6/1C-5/PAL16L8D 0:48C4/13F-20/AM29C821! I:50E6/6F-5/PAL16R8D
BDAP~		3	I:4C6/5C-13/74F244 B:4A6/C-C18!! O:7D4/2A-3/7438!
BDRY25~		5	I:6D2/10D-7/PAL16R8D I:7D3/2B-1/74F00 0:8C3/3D-18/AM29C821! I:8E3/4D-7/AM29C821 I:12D2/11D-4/PAL16L8D
BDRY50~		9	I:6D6/8D-1/PAL16L8B I:6D4/5D-5/PAL16R4D I:7D3/2B-2/74F00 I:7D4/2A-2/7438 I:8E3/4D-8/AM29C821 O:8E3/4D-18/AM29C821!
+			
BDRY75~		2	I:12D2/11D-5/PAL16L8D I:39C7/34D-B11/ND DELUGA I:50E6/6F-9/PAL16R8D
BDRY~		4	I:6D6/8D-2/PAL16L8B O:8E3/4D-17/AM29C821! I:4C6/5C-15/74F244 B:4A6/C-A19!! T:7D2/3A-3/74F241! O:48F4/7A-12/7407!
BD~0		3	B:4A5/C-C3!! B:10D6/6A-11/74AS648! I:13E5/8A-18/74ALS534
BD~1		3	B:4A5/C-A3!! B:10D6/6A-10/74AS648! I:13E5/8A-17/74ALS534
BD~10		3	B:4A3/C-C8!! B:10D4/5A-9/74AS648! I:13E3/9A-14/74ALS534
BD~11		3	B:4A3/C-A8!! B:10D4/5A-8/74AS648! I:13E3/9A-13/74ALS534
BD~12		3	B:4A3/C-C9!! B:10D4/5A-7/74AS648! I:13E3/9A-8/74ALS534
BD~13		3	B:4A3/C-A9!! B:10D4/5A-6/74AS648! I:13E3/9A-7/74ALS534
BD~14		3	B:4A2/C-C10!! B:10D4/5A-5/74AS648! I:13E3/9A-4/74ALS534
BD~15		3	B:4A2/C-A10!! B:10D4/5A-4/74AS648! I:13E3/9A-3/74ALS534
BD~16		4	B:4A2/C-B3!! B:10D2/4A-11/74AS648! I:13C5/10A-18/74ALS534 I:13C3/12A-18/74ALS534
BD~17		4	B:4A2/C-B4!! B:10D2/4A-10/74AS648! I:13C5/10A-17/74ALS534 I:13C3/12A-17/74ALS534
BD~18		4	B:4A2/C-B5!! B:10D2/4A-9/74AS648! I:13C5/10A-14/74ALS534 I:13C3/12A-14/74ALS534
BD~19		5	B:4A2/C-B6!! B:10D2/4A-8/74AS648! I:13C5/10A-13/74ALS534 I:13C3/12A-13/74ALS534 B:45C6/6G-12/PAL16R4D!
BD~2		3	B:4A5/C-C4!! B:10D6/6A-9/74AS648! I:13E5/8A-14/74ALS534
BD~20		5	B:4A1/C-B7!! B:10D2/4A-7/74AS648! I:13C5/10A-8/74ALS534 I:13C3/12A-8/74ALS534 I:45C6/6G-6/PAL16R4D
BD~21		5	B:4A1/C-B8!! B:10D2/4A-6/74AS648! I:13C5/10A-7/74ALS534 I:13C3/12A-7/74ALS534 I:45C6/6G-7/PAL16R4D
BD~22		4	B:4A1/C-B9!! B:10D2/4A-5/74AS648! I:13C5/10A-4/74ALS534 I:45C6/6G-8/PAL16R4D
BD~23		4	B:4A1/C-B10!! B:10D2/4A-4/74AS648! I:13C5/10A-3/74ALS534 I:45C6/6G-9/PAL16R4D
BD~3		3	B:4A5/C-A4!! B:10D6/6A-8/74AS648! I:13E5/8A-13/74ALS534
BD~4		3	B:4A4/C-C5!! B:10D6/6A-7/74AS648! I:13E5/8A-8/74ALS534
BD~5		3	B:4A4/C-A5!! B:10D6/6A-6/74AS648! I:13E5/8A-7/74ALS534
BD~6		3	B:4A4/C-C6!! B:10D6/6A-5/74AS648! I:13E5/8A-4/74ALS534
BD~7		3	B:4A4/C-A6!! B:10D6/6A-4/74AS648! I:13E5/8A-3/74ALS534
BD~8		3	B:4A4/C-C7!! B:10D4/5A-11/74AS648! I:13E3/9A-18/74ALS534
BD~9		3	B:4A3/C-A7!! B:10D4/5A-10/74AS648! I:13E3/9A-17/74ALS534
BEDO~		4	O:26D4/27H-14/74PCT244! I:32F2/32F-1/74PCT245 I:32F3/33F-1/74PCT245 I:33B7/28F-B10/ND DELILAH
BEMPID~		2	O:26D4/27H-16/74PCT244! I:33B7/28F-R11/ND DELILAH
BERROR~		3	I:4F4/C-B21! I:7D2/3A-17/74F241 T:7D2/3A-5/74F241!
BGNT25~		3	I:48C4/13F-9/AM29C821 O:48C4/13F-17/AM29C821! I:50E6/6F-7/PAL16R8D
BGNT50~		4	I:12D6/1C-3/PAL16L8D I:48E4/3F-7/PAL16L8D I:48C4/13F-10/AM29C821 O:48C4/13F-16/AM29C821!
BGNT75~	#48	2	I:48E4/3F-8/PAL16L8D O:48C4/13F-15/AM29C821!
BGNICTACT~		4	I:10D6/6A-22/74AS648 I:10D4/5A-22/74AS648 I:10D2/4A-22/74AS648 O:12D2/11D-19/PAL16L8D!
BGNT~		13	I:3A4/16A-6/74LS244 I:10D6/6A-23/74AS648 I:10D4/5A-23/74AS648 I:10D2/4A-23/74AS648 I:12D2/11D-11/PAL16L8D I:12D6/1C-2/PAL16L8D I:45C6/6G-11/PAL16R4D I:45E7/2D-1/74F74 I:48E4/3F-2/PAL16L8D I:48C4/13F-8/AM29C821 T:50B6/5F-17/PAL16R8D! I:50E6/6F-4/PAL16R8D I:50E3/12G-9/74LS123 I:4F4/C-B19! T:7D2/3A-14/74F241!
BINACK~		2	
BINPUT25~	#8	2	O:8C3/3D-20/AM29C821! I:8E3/4D-5/AM29C821
BINPUT50~		3	I:8E3/4D-11/AM29C821 O:8E3/4D-20/AM29C821! I:12E4/2C-4/PAL16L8D
BINPUT75~		2	I:7D2/3A-6/74F241 O:8E3/4D-14/AM29C821!
BINPUT~		3	I:4C6/5C-6/74F244 B:4A6/C-A18!! O:7D6/7A-6/7407!
BINT~10		4	B:4D1/RN3-9/4610X_101_102! I:4C6/5C-2/74F244 O:4C3/C-A15!! O:41F57/14A-8/74LS38!
BINT~11		3	B:4D1/RN3-8/4610X_101_102! I:4E3/33C-17/74F244 O:4C3/C-C15!!
BINT~12		4	B:4D1/RN3-7/4610X_101_102! I:4E3/33C-15/74F244 O:4C3/C-A16!! O:41F47/14A-3/74LS38!
BINT~13		4	B:4D1/RN3-6/4610X_101_102! I:4E3/33C-13/74F244

BINT~15	3	0:4C3/C-C16!! 0:41F5/14A-6/74LS38! B:4D1/RN3-5/4610X_101_102! 1:4E3/33C-11/74F244 0:4C3/C-C17!!
BIOXE~	3	1:4F5/C-C19! T:7D2/3A-16/74F241! B:48E4/3F-14/PAL16L8D!
BIOXL~	2	1:46C5/2F-7/PAL16L8B B:48E4/3F-17/PAL16L8D!
BLCS~	5	1:19C6/26B-20/27256 1:19C6/26B-22/27256 1:19C4/23B-20/27256 1:19C4/23B-22/27256 0:26D4/27H-12/74PCT244!
BLOCK25~	2	1:6D6/8D-3/PAL16L8B 0:8C3/3D-14/AM29C821!
BLOCKL25~	2	1:47D7/4F-2/PAL16L8B 0:48C7/14F-23/AM29C821!
BLOCK~	2	B:47D7/4F-16/PAL16L8B! 1:48C7/14F-2/AM29C821
BLRQ50~	2	B:6D6/8D-18/PAL16L8B! 1:8C3/3D-11/AM29C821
BLRQ~	2	0:48C4/13F-22/AM29C821! 1:50B6/5F-6/PAL16R8D
BMCL~	2	0:45E7/2D-6/74F74! 1:48C4/13F-2/AM29C821
BMEM~	3	0:4F6/35A-2/7406! 1:4F6/C-B20! 1:4F5/C-C20! 0:7D4/2A-6/7438! 1:45C6/6G-5/PAL16R4D
BMINH~	2	0:4F7/7A-4/7407! 1:4F7/C-B23!
BPERR25~	#8 2	0:8C3/3D-19/AM29C821! 1:8E3/4D-6/AM29C821
BPERR50~	2	1:6D6/8D-4/PAL16L8B 0:8E3/4D-19/AM29C821!
BPERR~	2	1:4C6/5C-8/74F244 0:4A6/C-B18!
BREF~	2	1:4F4/C-A12! 0:7D6/7A-8/7407!
BREQ25~	#8 2	0:8C3/3D-16/AM29C821! 1:8E3/4D-9/AM29C821
BREQ50~	2	1:6D2/10D-5/PAL16R8D 0:8E3/4D-16/AM29C821!
BREQ~	2	1:4E3/33C-4/74F244 0:4C2/C-C12!!
BRK~	7	1:18B2/15F-9/PAL16L8D 1:25E6/17F-9/74F10 0:34E3/29H-8/74F32! 1:36E5/13D-7/PAL16L8D 1:36D4/12D-9/PAL16R6D 1:39C7/34D-F2/ND DELDGA 0:39A4/RN17-2/4610X_101_103! T:50B6/5F-13/PAL16R8D!
BSEM~	#50 1	0:26D4/27H-18/74PCT244! 1:33B7/28F-R6/ND DEL11AH
BSTP	2	1:3F4/15C-17/74LS244 1:14D6/6C-18/74PCT374
CA0	9	1:24A2/21C-1/PAL16L8D 1:25D6/24F-8/TMM2018D_25 1:25B6/20F-8/TMM2018D_25 1:25B3/16F-8/TMM2018D_25 1:25G3/21F-21/AM9150_20 1:25D3/23F-8/TMM2018D_25 0:32D3/25F-23/AM29C821!
CA1	8	1:3F4/15C-15/74LS244 1:14D6/6C-17/74PCT374 1:25D6/24F-7/TMM2018D_25 1:25B6/20F-7/TMM2018D_25 1:25B3/16F-7/TMM2018D_25
CA10	5	1:25G3/21F-22/AM9150_20 1:25D3/23F-7/TMM2018D_25 0:32D3/25F-22/AM29C821! 1:25D6/24F-19/TMM2018D_25 1:25B6/20F-19/TMM2018D_25 1:25B3/16F-19/TMM2018D_25 1:25D3/23F-19/TMM2018D_25 0:39C7/34D-G2/ND DELDGA
CA2	8	1:3F4/15C-13/74LS244 1:14D6/6C-14/74PCT374 1:25D6/24F-6/TMM2018D_25 1:25B6/20F-6/TMM2018D_25 1:25B3/16F-6/TMM2018D_25
CA3	8	1:25G3/21F-23/AM9150_20 1:25D3/23F-6/TMM2018D_25 0:32D3/25F-21/AM29C821! 1:3F4/15C-11/74LS244 1:14D6/6C-13/74PCT374 1:25D6/24F-5/TMM2018D_25 1:25B6/20F-5/TMM2018D_25 1:25B3/16F-5/TMM2018D_25
CA4	8	1:25G3/21F-1/AM9150_20 1:25D3/23F-5/TMM2018D_25 0:32D3/25F-20/AM29C821! 1:3F4/15C-8/74LS244 1:14D6/6C-8/74PCT374 1:25D6/24F-4/TMM2018D_25 1:25B6/20F-4/TMM2018D_25 1:25B3/16F-4/TMM2018D_25
CA5	8	1:25G3/21F-2/AM9150_20 1:25D3/23F-4/TMM2018D_25 0:32D3/25F-19/AM29C821! 1:3F4/15C-6/74LS244 1:14D6/6C-7/74PCT374 1:25D6/24F-3/TMM2018D_25 1:25B6/20F-3/TMM2018D_25 1:25B3/16F-3/TMM2018D_25
CA6	8	1:25G3/21F-3/AM9150_20 1:25D3/23F-3/TMM2018D_25 0:32D3/25F-18/AM29C821! 1:3F4/15C-4/74LS244 1:14D6/6C-4/74PCT374 1:25D6/24F-2/TMM2018D_25 1:25B6/20F-2/TMM2018D_25 1:25B3/16F-2/TMM2018D_25
CA7	8	1:25G3/21F-4/AM9150_20 1:25D3/23F-2/TMM2018D_25 0:32D3/25F-17/AM29C821! 1:3F4/15C-2/74LS244 1:14D6/6C-3/74PCT374 1:25D6/24F-1/TMM2018D_25 1:25B6/20F-1/TMM2018D_25 1:25B3/16F-1/TMM2018D_25
CA8	8	1:25G3/21F-5/AM9150_20 1:25D3/23F-1/TMM2018D_25 0:32D3/25F-16/AM29C821! 1:3F3/16G-17/74LS244 1:14D5/4B-18/74PCT374 1:25D6/24F-23/TMM2018D_25 1:25B6/20F-23/TMM2018D_25 1:25B3/16F-23/TMM2018D_25 1:25G3/21F-6/AM9150_20 1:25D3/23F-23/TMM2018D_25
CA9	8	0:32D3/25F-15/AM29C821! 1:3F3/16G-15/74LS244 1:14D5/4B-17/74PCT374 1:25D6/24F-22/TMM2018D_25 1:25B6/20F-22/TMM2018D_25 1:25B3/16F-22/TMM2018D_25 1:25G3/21F-7/AM9150_20 1:25D3/23F-22/TMM2018D_25
CACT25~	2	0:32D3/25F-14/AM29C821!
CACT~	6	1:6D4/5D-4/PAL16R4D 0:8C3/3D-17/AM29C821! T:6D2/10D-12/PAL16R8D! 1:6D4/5D-3/PAL16R4D 1:7D7/9D-9/74F02 1:8C3/3D-8/AM29C821 1:12D2/11D-8/PAL16L8D 1:12E4/2C-1/PAL16L8D
CAS	4	1:49B7/9H-5/74F00 1:49D7/9H-13/74F00 1:49F7/8G-13/74F00 T:50E6/6F-14/PAL16R8D!
CAS~0	#49 5	1:49C3/15H-28/SIP1M9 1:49C3/15H-2/SIP1M9 1:49C5/15J-28/SIP1M9 1:49C5/15J-2/SIP1M9 0:49B7/9H-6/74F00!
CAS~1	#49 5	1:49E3/15K-28/SIP1M9 1:49E3/15K-2/SIP1M9

CAS ²	#49	5	I:49E5/15L-28/SIP1M9 I:49E5/15L-2/SIP1M9 O:49D7/9H-11/74F00
			I:49G5/15N-28/SIP1M9 I:49G5/15N-2/SIP1M9
			I:49G3/15M-28/SIP1M9 I:49G3/15M-2/SIP1M9 O:49F7/8G-11/74F00
CBIT	#45	2	T:45E2/7C-17/PAL16R8B I:45F2/8H-2/74LS248
CBWRITE [~]		3	I:7E7/2A-9/7438 I:7D6/7A-5/7407 B:12E4/2C-18/PAL16L8D
CCLR [~]		2	I:25G3/21F-20/AM9150 20 O:39C7/34D-J1/ND DELDGA
CC ⁰	#36	2	I:36E5/13D-2/PAL16L8D T:36D4/12D-16/PAL16R6D
CC ¹		3	I:18B2/15F-2/PAL16L8D I:36E5/13D-3/PAL16L8D
			T:36D4/12D-15/PAL16R6D
CC ²		6	I:6D4/5D-2/PAL16R4D I:12D2/11D-3/PAL16L8D
			I:18B2/15F-3/PAL16L8D I:24A2/21G-8/PAL16L8D I:36E5/13D-4/PAL16L8D
			T:36D4/12D-14/PAL16R6D
CC ³		3	I:18B2/15F-4/PAL16L8D I:36E5/13D-5/PAL16L8D
			T:36D4/12D-13/PAL16R6D
CD0		6	I:3D6/20A-17/74LS244 B:11D5/6B-13/74AS646
			O:11G2/RN20-9/4610X 101 102 B:25D6/24F-17/TMM2018D_25
			I:33B7/28F-D17/ND DELILAH O:35D5/15B-3/74PCT244
CD1		6	I:3D6/20A-15/74LS244 B:11D5/6B-14/74AS646
			O:11G2/RN20-8/4610X 101 102 B:25D6/24F-16/TMM2018D_25
			I:33B7/28F-G16/ND DELILAH O:35D5/15B-5/74PCT244
CD10		6	I:3D4/18A-13/74LS244 O:11E2/RN19-7/4610X 101 102
			B:11D4/7B-15/74AS646 B:25D3/23F-15/TMM2018D_25 I:33B7/28F-C16/ND DELILAH
+			
CD11		6	O:35D3/14B-7/74PCT244
			I:3D4/18A-11/74LS244 O:11E2/RN19-6/4610X 101 102
			B:11D4/7B-16/74AS646 B:25D3/23F-14/TMM2018D_25 I:33B7/28F-E14/ND DELILAH
+			
CD12		6	O:35D3/14B-9/74PCT244
			I:3D4/18A-8/74LS244 O:11E2/RN19-5/4610X 101 102
			B:11D4/7B-17/74AS646 B:25D3/23F-13/TMM2018D_25 I:33B7/28F-A17/ND DELILAH
+			
CD13		6	O:35D3/14B-12/74PCT244
			I:3D4/18A-6/74LS244 O:11E2/RN19-4/4610X 101 102
			B:11D4/7B-18/74AS646 B:25D3/23F-11/TMM2018D_25 I:33B7/28F-D15/ND DELILAH
+			
CD14		6	O:35D3/14B-14/74PCT244
			I:3D4/18A-4/74LS244 O:11E2/RN19-3/4610X 101 102
			B:11D4/7B-19/74AS646 B:25D3/23F-10/TMM2018D_25 I:33B7/28F-D14/ND DELILAH
+			
CD15		6	O:35D3/14B-16/74PCT244
			I:3D4/18A-2/74LS244 O:11E2/RN19-2/4610X 101 102
			B:11D4/7B-20/74AS646 B:25D3/23F-9/TMM2018D_25 I:33B7/28F-A16/ND DELILAH
+			
CD2		6	O:35D3/14B-18/74PCT244
			I:3D6/20A-13/74LS244 B:11D5/6B-15/74AS646
			O:11G2/RN20-7/4610X 101 102 B:25D6/24F-15/TMM2018D_25
			I:33B7/28F-C17/ND DELILAH O:35D5/15B-7/74PCT244
CD3		6	I:3D6/20A-11/74LS244 B:11D5/6B-16/74AS646
			O:11G2/RN20-6/4610X 101 102 B:25D6/24F-14/TMM2018D_25
			I:33B7/28F-F15/ND DELILAH O:35D5/15B-9/74PCT244
CD4		6	I:3D6/20A-8/74LS244 B:11D5/6B-17/74AS646
			O:11G2/RN20-5/4610X 101 102 B:25D6/24F-13/TMM2018D_25
			I:33B7/28F-D16/ND DELILAH O:35D5/15B-12/74PCT244
CD5		6	I:3D6/20A-6/74LS244 B:11D5/6B-18/74AS646
			O:11G2/RN20-4/4610X 101 102 B:25D6/24F-11/TMM2018D_25
			I:33B7/28F-G14/ND DELILAH O:35D5/15B-14/74PCT244
CD6		6	I:3D6/20A-4/74LS244 B:11D5/6B-19/74AS646
			O:11F2/RN20-3/4610X 101 102 B:25D6/24F-10/TMM2018D_25
			I:33B7/28F-F14/ND DELILAH O:35D5/15B-16/74PCT244
CD7		6	I:3D6/20A-2/74LS244 B:11D5/6B-20/74AS646
			O:11F2/RN20-2/4610X 101 102 B:25D6/24F-9/TMM2018D_25
			I:33B7/28F-E16/ND DELILAH O:35D5/15B-18/74PCT244
CD8		6	I:3D4/18A-17/74LS244 O:11F2/RN19-9/4610X 101 102
			B:11D4/7B-13/74AS646 B:25D3/23F-17/TMM2018D_25 I:33B7/28F-B17/ND DELILAH
+			
CD9		6	O:35D3/14B-3/74PCT244
			I:3D4/18A-15/74LS244 O:11E2/RN19-8/4610X 101 102
			B:11D4/7B-14/74AS646 B:25D3/23F-16/TMM2018D_25 I:33B7/28F-E15/ND DELILAH
+			
CEUART [~]		2	O:39C7/34D-N10/ND DELDGA I:42B3/32H-11/SC2661
CGABRK [~]		2	O:33B7/28F-R10/ND DELILAH I:34E3/29H-9/74F32
CGNT25 [~]		3	I:48C4/13F-7/AM29C821 O:48C4/13F-19/AM29C821
			I:50E6/6F-8/PAL16R8D
CGNT50 [~]		4	I:6D4/5D-7/PAL16R4D I:12D2/11D-7/PAL16L8D
			I:48E4/3F-5/PAL16L8D O:48C4/13F-18/AM29C821
CGNTCACT [~]		2	O:12D2/11D-12/PAL16L8D I:36D4/12D-7/PAL16R6D
CGNT [~]		11	I:3A4/16A-8/74LS244 I:6D4/5D-6/PAL16R4D
			I:12D2/11D-6/PAL16L8D I:12E4/2C-2/PAL16L8D I:12D6/1C-1/PAL16L8D
			I:45C4/9G-11/PAL16R4D I:48E4/3F-3/PAL16L8D I:48C4/13F-6/AM29C821
			T:50B6/5F-18/PAL16R8D I:50E6/6F-3/PAL16R8D I:50D3/12C-1/74LS123
CLEAR25 [~]	#8	2	O:8C3/3D-23/AM29C821 I:8E3/4D-2/AM29C821
CLEAR [~]		5	I:4F7/7A-3/7407 I:8C3/3D-2/AM29C821
			O:39C7/34D-F11/ND DELDGA I:40D7/35C-2/MC68705U3 I:41E4/28A-1/74LS273

CLK	11	I:3A4/16A-4/74LS244 I:3A7/21A-11/74LS374 I:17E7/31G-13/AM29841 I:34D3/19F-1/PAL16R4D I:34D4/22F-1/PAL16R4D I:36B5/14D-1/PAL16R4D I:36B3/15D-1/PAL16R4D O:36F2/14C-3/74F00 O:39A1/RN15-2/4610X_101_102 I:39C7/34D-D1/ND_DELIGA I:42C6/33G-6/AM29C821
+ CLOSC	4	I:38D1/13C-2/74LS393 I:38E2/13C-12/74LS393 O:38B3/12F-8/74S132 I:39C7/34D-A9/ND_DELIGA
CLRERR~	#46 3	B:46C5/2F-17/PAL16L8B I:46D2/1H-11/AM29833 I:46D4/2H-11/AM29833
CLRQ~	2	B:45C4/9G-18/PAL16R4D I:50B6/5F-5/PAL16R8D
CMWRITE~	#12 1	B:12E4/2C-17/PAL16L8D
CON	5	I:25E6/17F-10/74F10 B:25F7/SW1-3/SECME090320102 B:25F7/LED1-2/RED I:26D4/27H-11/74PCT244 I:26D4/27H-13/74PCT244
CONSOLE~	5	B:2E2/RN1-9/4610X_101_102 O:2D5/A-C21 I:2D5/A-C30 O:41G3/2A-11/7438 I:42C6/33G-6/AM29C821
CONTINUE~	3	B:4D1/RN3-4/4610X_101_102 I:4E3/33C-6/74F244 O:4C2/C-B15
CON~	4	B:25F7/SW1-1/SECME090320102 B:25F6/RN14-3/4610X_101_102 I:26D4/27H-15/74PCT244 I:27D6/19G-1/74FCT521A
+ CORR~	8	I:47C2/7C-14/74PCT374 B:47B1/RN4-2/4610X_101_222 O:49C3/15H-24/SIP1M9 O:49C5/15J-24/SIP1M9 O:49E3/15K-24/SIP1M9 O:49E5/15L-24/SIP1M9 O:49G5/15N-24/SIP1M9 O:49G3/15M-24/SIP1M9
CPN10	3	B:25B6/20F-17/TMM2018D 25 I:27D6/19G-18/74FCT521A O:31D5/10G-3/74PCT244
CPN11	3	B:25B6/20F-16/TMM2018D 25 I:27D6/19G-16/74FCT521A O:31D5/10G-5/74PCT244
CPN12	3	B:25B6/20F-15/TMM2018D 25 I:27D6/19G-14/74FCT521A O:31D5/10G-7/74PCT244
CPN13	3	B:25B6/20F-14/TMM2018D 25 I:27D6/19G-12/74FCT521A O:31D5/10G-9/74PCT244
CPN14	3	B:25B6/20F-13/TMM2018D 25 I:27D6/19G-9/74FCT521A O:31D5/10G-12/74PCT244
CPN15	3	B:25B6/20F-11/TMM2018D 25 I:27D6/19G-7/74FCT521A O:31D5/10G-14/74PCT244
CPN16	3	B:25B6/20F-10/TMM2018D 25 I:27D6/19G-5/74FCT521A O:31D5/10G-16/74PCT244
CPN17	3	B:25B6/20F-9/TMM2018D 25 I:27D6/19G-3/74FCT521A O:31D5/10G-18/74PCT244
CPN18	3	B:25B3/16F-17/TMM2018D 25 I:27D3/18G-18/74FCT521A O:31D3/11G-3/74PCT244
CPN19	3	B:25B3/16F-16/TMM2018D 25 I:27D3/18G-16/74FCT521A O:31D3/11G-5/74PCT244
CPN20	3	B:25B3/16F-15/TMM2018D 25 I:27D3/18G-14/74FCT521A O:31D3/11G-7/74PCT244
CPN21	3	B:25B3/16F-14/TMM2018D 25 I:27D3/18G-12/74FCT521A O:31D3/11G-9/74PCT244
CPN22	3	B:25B3/16F-13/TMM2018D 25 I:27D3/18G-9/74FCT521A O:31D3/11G-12/74PCT244
CPN23	3	B:25B3/16F-11/TMM2018D 25 I:27D3/18G-7/74FCT521A O:31D3/11G-14/74PCT244
CRQ~	2	I:6D2/10D-2/PAL16R8D B:45C4/9G-13/PAL16R4D
CSA0	3	I:17E4/31F-11/AM29841 I:17E5/32G-11/AM29841 O:33B7/28F-L3/ND_DELILAH
CSA1	3	I:17E4/31F-10/AM29841 I:17E5/32G-10/AM29841 O:33B7/28F-P1/ND_DELILAH
CSA10	3	I:17D2/29H-4/74F32 I:17E2/30H-7/74F373 O:33B7/28F-Q2/ND_DELILAH
CSA11	3	I:17D1/29H-1/74F32 I:17E2/30H-4/74F373 O:33B7/28F-N4/ND_DELILAH
CSA12	2	I:17E2/30H-3/74F373 O:33B7/28F-S1/ND_DELILAH
CSA2	3	I:17E4/31F-9/AM29841 I:17E5/32G-9/AM29841 O:33B7/28F-L2/ND_DELILAH
CSA3	3	I:17E4/31F-8/AM29841 I:17E5/32G-8/AM29841 O:33B7/28F-Q1/ND_DELILAH
CSA4	3	I:17E4/31F-7/AM29841 I:17E5/32G-7/AM29841 O:33B7/28F-M4/ND_DELILAH
CSA5	3	I:17E4/31F-6/AM29841 I:17E5/32G-6/AM29841 O:33B7/28F-L4/ND_DELILAH
CSA6	3	I:17E4/31F-5/AM29841 I:17E5/32G-5/AM29841 O:33B7/28F-P2/ND_DELILAH
CSA7	3	I:17E4/31F-4/AM29841 I:17E5/32G-4/AM29841 O:33B7/28F-N2/ND_DELILAH
CSA8	3	I:17E4/31F-3/AM29841 I:17E5/32G-3/AM29841 O:33B7/28F-R1/ND_DELILAH
CSA9	3	I:17E4/31F-2/AM29841 I:17E5/32G-2/AM29841 O:33B7/28F-N3/ND_DELILAH
CSALUI0	4	B:20C3/19B-2/74LS245 B:21B6/18D-15/1DT6168A 20 B:22B6/18C-15/1DT6168A 20 I:33B7/28F-C1/ND_DELILAH
CSALUI1	4	B:20B3/16B-9/74LS245 B:21B4/17D-12/1DT6168A 20 B:22B4/17C-12/1DT6168A 20 I:33B7/28F-D4/ND_DELILAH
CSALUI2	4	B:20B3/16B-8/74LS245 B:21D4/17D-13/1DT6168A 20 B:22B4/17C-13/1DT6168A 20 I:33B7/28F-D2/ND_DELILAH
CSALUI3	4	B:20B3/16B-7/74LS245 B:21B4/17D-14/1DT6168A 20

CSALUI4 4 B:22B4/17C-14/IDT6168A 20! I:33B7/28F-D3/ND DELILAH
B:20B3/16B-6/74LS245! B:21B4/17D-15/IDT6168A 20!
CSALUI5 4 B:22B4/17C-15/IDT6168A 20! I:33B7/28F-F4/ND DELILAH
B:20B3/16B-5/74LS245! B:21B2/16D-12/IDT6168A 20!
CSALUI6 4 B:22B2/16C-12/IDT6168A 20! I:33B7/28F-G4/ND DELILAH
B:20B3/16B-4/74LS245! B:21B2/16D-13/IDT6168A 20!
CSALUI7 5 B:22B2/16C-13/IDT6168A 20! I:33B7/28F-D1/ND DELILAH
B:20B3/16B-3/74LS245! B:21B2/16D-14/IDT6168A 20!
CSALUI8 5 B:22B2/16C-14/IDT6168A 20! I:33B7/28F-E4/ND DELILAH I:36B3/15D-6/PAL16R4D
B:20B3/16B-2/74LS245! B:21B2/16D-15/IDT6168A 20!
CSALUM0 5 B:22B2/16C-15/IDT6168A 20! I:33B7/28F-A1/ND DELILAH I:36B3/15D-5/PAL16R4D
B:20B4/20B-5/74LS245! B:21C2/20D-12/IDT6168A 20!
CSALUM1 5 B:22C2/20C-12/IDT6168A 20! I:33B7/28F-C2/ND DELILAH I:36B3/15D-4/PAL16R4D
B:20B4/20B-4/74LS245! B:21C2/20D-13/IDT6168A 20!
CSBIT0 4 B:22C2/20C-13/IDT6168A 20! I:33B7/28F-C3/ND DELILAH I:36B3/15D-3/PAL16R4D
B:20C7/29B-9/74LS245! B:21F7/31D-12/IDT6168A 20!
CSBIT1 4 B:22F7/31C-12/IDT6168A 20! I:33B7/28F-B6/ND DELILAH
B:20C7/29B-8/74LS245! B:21F7/31D-13/IDT6168A 20!
CSBIT10 4 B:22F7/31C-13/IDT6168A 20! I:33B7/28F-D8/ND DELILAH
B:20B7/28B-7/74LS245! B:21F4/29D-14/IDT6168A 20!
CSBIT11 4 B:22F4/29C-14/IDT6168A 20! I:33B7/28F-A3/ND DELILAH
B:20B7/28B-6/74LS245! B:21F4/29D-15/IDT6168A 20!
CSBIT12 4 B:22F4/29C-15/IDT6168A 20! I:33B7/28F-C6/ND DELILAH
B:20B7/28B-5/74LS245! B:21F2/28D-12/IDT6168A 20!
CSBIT13 4 B:22F2/28C-12/IDT6168A 20! I:33B7/28F-B3/ND DELILAH
B:20B7/28B-4/74LS245! B:21F2/28D-13/IDT6168A 20!
CSBIT14 4 B:22F2/28C-13/IDT6168A 20! I:33B7/28F-C5/ND DELILAH
B:20B7/28B-3/74LS245! B:21F2/28D-14/IDT6168A 20!
CSBIT15 4 B:22F2/28C-14/IDT6168A 20! I:33B7/28F-A2/ND DELILAH
B:20B7/28B-2/74LS245! B:21F2/28D-15/IDT6168A 20!
CSBIT2 4 B:22F2/28C-15/IDT6168A 20! I:33B7/28F-B4/ND DELILAH
B:20C7/29B-7/74LS245! B:21F7/31D-14/IDT6168A 20!
CSBIT20 4 B:22F7/31C-14/IDT6168A 20! I:33B7/28F-A5/ND DELILAH
B:20C6/27B-5/74LS245! B:21D6/26D-12/IDT6168A 20!
CSBIT3 4 B:22D6/26C-12/IDT6168A 20! I:33B7/28F-P4/ND DELILAH
B:20C7/29B-6/74LS245! B:21F7/31D-15/IDT6168A 20!
CSBIT4 4 B:22F7/31C-15/IDT6168A 20! I:33B7/28F-B7/ND DELILAH
B:20C7/29B-5/74LS245! B:21F6/30D-12/IDT6168A 20!
CSBIT5 4 B:22F6/30C-12/IDT6168A 20! I:33B7/28F-B5/ND DELILAH
B:20C7/29B-4/74LS245! B:21F6/30D-13/IDT6168A 20!
CSBIT6 4 B:22F6/30C-13/IDT6168A 20! I:33B7/28F-C7/ND DELILAH
B:20C7/29B-3/74LS245! B:21F6/30D-14/IDT6168A 20!
CSBIT7 4 B:22F6/30C-14/IDT6168A 20! I:33B7/28F-A4/ND DELILAH
B:20C7/29B-2/74LS245! B:21F6/30D-15/IDT6168A 20!
CSBIT8 4 B:22F6/30C-15/IDT6168A 20! I:33B7/28F-D7/ND DELILAH
B:20B7/28B-9/74LS245! B:21F4/29D-12/IDT6168A 20!
CSBIT9 4 B:22F4/29C-12/IDT6168A 20! I:33B7/28F-D6/ND DELILAH
B:20B7/28B-8/74LS245! B:21F4/29D-13/IDT6168A 20!
CSCA0 3 B:22F4/29C-13/IDT6168A 20! I:33B7/28F-E7/ND DELILAH
I:17E7/31G-11/AM29841 I:32D3/25F-2/AM29C821
O:33B7/28F-P14/ND DELILAH!
CSCA1 3 I:17E7/31G-10/AM29841 I:32D3/25F-3/AM29C821
O:33B7/28F-P16/ND DELILAH!
CSCA2 3 I:17E7/31G-9/AM29841 I:32D3/25F-4/AM29C821
O:33B7/28F-P15/ND DELILAH!
CSCA3 3 I:17E7/31G-8/AM29841 I:32D3/25F-5/AM29C821
O:33B7/28F-P17/ND DELILAH!
CSCA4 3 I:17E7/31G-7/AM29841 I:32D3/25F-6/AM29C821
O:33B7/28F-L14/ND DELILAH!
CSCA5 3 I:17E7/31G-6/AM29841 I:32D3/25F-7/AM29C821
O:33B7/28F-M14/ND DELILAH!
CSCA6 3 I:17E7/31G-5/AM29841 I:32D3/25F-8/AM29C821
O:33B7/28F-N17/ND DELILAH!
CSCA7 3 I:17E7/31G-4/AM29841 I:32D3/25F-9/AM29C821
O:33B7/28F-N15/ND DELILAH!
CSCA8 3 I:17E7/31G-3/AM29841 I:32D3/25F-10/AM29C821
O:33B7/28F-M16/ND DELILAH!
CSCA9 3 I:17E7/31G-2/AM29841 I:32D3/25F-11/AM29C821
O:33B7/28F-N16/ND DELILAH!
CSCISEL0 4 B:20B4/20B-3/74LS245! B:21C2/20D-14/IDT6168A 20!
B:22C2/20C-14/IDT6168A 20! I:33B7/28F-B11/ND DELILAH
CSCISEL1 4 B:20B4/20B-2/74LS245! B:21C2/20D-15/IDT6168A 20!
B:22C2/20C-15/IDT6168A 20! I:33B7/28F-A10/ND DELILAH
CSCOMMO 8 I:3A7/21A-13/74LS374 B:20C4/21B-9/74LS245!
B:21C7/23D-12/IDT6168A 20! B:22C7/23C-12/IDT6168A 20!
I:33B7/28F-G17/ND DELILAH I:34D4/22F-6/PAL16R4D I:39C7/34D-L5/ND DELDGA
O:39A3/RN16-2/4610X 101 103!
CSCOMM1 8 I:3A7/21A-8/74LS374 B:20C4/21B-8/74LS245!
B:21C7/23D-13/IDT6168A 20! B:22C7/23C-13/IDT6168A 20!
I:33B7/28F-H15/ND DELILAH I:34D4/22F-5/PAL16R4D O:39B1/RN15-10/4610X 101 103
I:39C7/34D-M4/ND DELDGA
CSCOMM2 8 I:3A7/21A-7/74LS374 B:20C4/21B-7/74LS245!
B:21C7/23D-14/IDT6168A 20! B:22C7/23C-14/IDT6168A 20!

			I:33B7/28F-F17/ND DELILAH I:34D4/22F-4/PAL16R4D O:39A1/RN15-9/4610X_101_103 I:39C7/34D-N3/ND DELDGA
CSCOMM3	8		I:3A7/21A-4/74LS374 B:20C4/21B-6/74LS245 B:21C7/23D-15/IDT6168A 20! B:22C7/23C-15/IDT6168A 20! I:33B7/28F-H14/ND DELILAH I:34D4/22F-3/PAL16R4D O:39A1/RN15-8/4610X_101_103
			I:39C7/34D-M3/ND DELDGA
CSCOMM4	8		I:3A7/21A-3/74LS374 B:20C4/21B-5/74LS245 B:21C6/22D-12/IDT6168A 20! B:22C6/22C-12/IDT6168A 20! I:33B7/28F-E17/ND DELILAH I:34D4/22F-2/PAL16R4D O:39A1/RN15-7/4610X_101_103
			I:39C7/34D-L4/ND DELDGA
CSDELAY0	5		B:20B6/24B-7/74LS245! B:21D4/25D-14/IDT6168A 20! B:22D4/25C-14/IDT6168A 20! I:36B5/14D-2/PAL16R4D I:36D4/12D-4/PAL16R6D
CSDELAY1	4		B:20B6/24B-6/74LS245! B:21D4/25D-15/IDT6168A 20! B:22D4/25C-15/IDT6168A 20! I:36B3/15D-2/PAL16R4D
CSDLY	4		B:20C6/27B-4/74LS245! B:21D6/26D-13/IDT6168A 20! B:22D6/26C-13/IDT6168A 20! I:36B5/14D-3/PAL16R4D
CSECOND	5		B:20C6/27B-2/74LS245! B:21D6/26D-15/IDT6168A 20! B:22D6/26C-15/IDT6168A 20! I:33B7/28F-G3/ND DELILAH I:36B5/14D-4/PAL16R4D
CSEM	#50	1	T:50B6/5F-14/PAL16R8D
CSIDBS0	7		B:20C4/21B-4/74LS245! B:21C6/22D-13/IDT6168A 20! B:22C6/22C-13/IDT6168A 20! I:33B7/28F-E1/ND DELILAH I:34D3/19F-2/PAL16R4D
			I:39C7/34D-C2/ND DELDGA O:39A3/RN16-9/4610X_101_103 B:20C4/21B-3/74LS245! B:21C6/22D-14/IDT6168A 20! B:22C6/22C-14/IDT6168A 20! I:33B7/28F-E3/ND DELILAH I:34D3/19F-3/PAL16R4D
CSIDBS1	7		I:39C7/34D-D3/ND DELDGA O:39A3/RN16-8/4610X_101_103 B:20C4/21B-2/74LS245! B:21C6/22D-15/IDT6168A 20! B:22C6/22C-15/IDT6168A 20! I:33B7/28F-F2/ND DELILAH I:34D3/19F-4/PAL16R4D
CSIDBS2	7		I:39C7/34D-C4/ND DELDGA O:39A3/RN16-7/4610X_101_103 B:20B4/20B-9/74LS245! B:21C4/21D-12/IDT6168A 20! B:22C4/21C-12/IDT6168A 20! I:33B7/28F-E2/ND DELILAH I:34D3/19F-5/PAL16R4D
CSIDBS3	7		I:39C7/34D-A2/ND DELDGA O:39A3/RN16-6/4610X_101_103 B:20B4/20B-8/74LS245! B:21C4/21D-13/IDT6168A 20! B:22C4/21C-13/IDT6168A 20! I:33B7/28F-F1/ND DELILAH I:34D3/19F-6/PAL16R4D
CSIDBS4	7		I:39C7/34D-A3/ND DELDGA O:39A3/RN16-5/4610X_101_103 B:20C6/27B-3/74LS245! B:21D6/26D-14/IDT6168A 20! B:22D6/26C-14/IDT6168A 20! I:33B7/28F-G1/ND DELILAH I:36B5/14D-5/PAL16R4D
CSLOOP	5		I:3A7/21A-17/74LS374 B:20B4/20B-7/74LS245! B:21C4/21D-14/IDT6168A 20! B:22C4/21C-14/IDT6168A 20! I:33B7/28F-H13/ND DELILAH I:34D4/22F-8/PAL16R4D I:39C7/34D-N2/ND DELDGA O:39A3/RN16-4/4610X_101_103
CSMIS0	8		I:3A7/21A-14/74LS374 B:20B4/20B-6/74LS245! B:21C4/21D-15/IDT6168A 20! B:22C4/21C-15/IDT6168A 20! I:33B7/28F-F16/ND DELILAH I:34D4/22F-7/PAL16R4D I:39C7/34D-K3/ND DELDGA O:39A3/RN16-3/4610X_101_103
CSMIS1	8		B:20C3/19B-6/74LS245! B:21B7/19D-15/IDT6168A 20! B:22B7/19C-15/IDT6168A 20! I:33B7/28F-H2/ND DELILAH
CSRASEL0	4		B:20C3/19B-5/74LS245! B:21B6/18D-12/IDT6168A 20! B:22B6/18C-12/IDT6168A 20! I:33B7/28F-G2/ND DELILAH
CSRASEL1	4		B:20C6/27B-9/74LS245! B:21D7/27D-12/IDT6168A 20! B:22D7/27C-12/IDT6168A 20! I:33B7/28F-H1/ND DELILAH
CSRB0	4		B:20C6/27B-8/74LS245! B:21D7/27D-13/IDT6168A 20! B:22D7/27C-13/IDT6168A 20! I:33B7/28F-H4/ND DELILAH
CSRB1	4		B:20C6/27B-7/74LS245! B:21D7/27D-14/IDT6168A 20! B:22D7/27C-14/IDT6168A 20! I:33B7/28F-J1/ND DELILAH
CSRB2	4		B:20C6/27B-6/74LS245! B:21D7/27D-15/IDT6168A 20! B:22D7/27C-15/IDT6168A 20! I:33B7/28F-H3/ND DELILAH
CSRB3	4		B:20C3/19B-9/74LS245! B:21B7/19D-12/IDT6168A 20! B:22B7/19C-12/IDT6168A 20! I:33B7/28F-S2/ND DELILAH
CSRBSEL0	4		B:20C3/19B-8/74LS245! B:21B7/19D-13/IDT6168A 20! B:22B7/19C-13/IDT6168A 20! I:33B7/28F-Q3/ND DELILAH
CSRBSEL1	4		B:20B6/24B-9/74LS245! B:21D4/25D-12/IDT6168A 20! B:22D4/25C-12/IDT6168A 20! I:33B7/28F-S3/ND DELILAH
CSSCOND	4		B:20C3/19B-4/74LS245! B:21B6/18D-13/IDT6168A 20! B:22B6/18C-13/IDT6168A 20! I:33B7/28F-D10/ND DELILAH
CSSST0	4		B:20C3/19B-3/74LS245! B:21B6/18D-14/IDT6168A 20! B:22B6/18C-14/IDT6168A 20! I:33B7/28F-A9/ND DELILAH
CSSST1	4		B:20B6/24B-5/74LS245! B:21D2/24D-12/IDT6168A 20! B:22D2/24C-12/IDT6168A 20! I:33B7/28F-R4/ND DELILAH
CSTS3	4		B:20B6/24B-4/74LS245! B:21D2/24D-13/IDT6168A 20! B:22D2/24C-13/IDT6168A 20! I:33B7/28F-S4/ND DELILAH
CSTS4	4		B:20B6/24B-3/74LS245! B:21D2/24D-14/IDT6168A 20! B:22D2/24C-14/IDT6168A 20! I:33B7/28F-P5/ND DELILAH
CSTS5	4		B:20B6/24B-2/74LS245! B:21D2/24D-15/IDT6168A 20! B:22D2/24C-15/IDT6168A 20! I:33B7/28F-P6/ND DELILAH
CSTS6	4		B:20B6/24B-8/74LS245! B:21D4/25D-13/IDT6168A 20! B:22D4/25C-13/IDT6168A 20! I:33B7/28F-N7/ND DELILAH
CSVECT	4		B:20C3/19B-7/74LS245! B:21B7/19D-14/IDT6168A 20!
CSXRF	4		

			B:22B7/19C-14/1DT6168A 20' I:33B7/28F-R5 ND DELILAH
CX~	2		T:36D4/12D-18/PAL16R6D I:41C5/25A-2/74PCT244
CYD~	2		I:25F5/18F-6/PAL16R4D B:36E5/13D-17/PAL16L8D
DAP~	4		B:6D4/5D-18/PAL16R4D I:7D4/1F-11/74F04
DA~	4		I:39C7/34D-M5/ND DELDGA O:39A4/RN17-5/4610X 101 103
			I:41F4/11B-5/74L504 O:42B3/32H-14 SC2661
			O:42C5/RN7-3/4610X 101 103 I:42C6/33G-3/AM29C821
DBAPR	7		I:6D6/8D-5/PAL16L8B I:10D6/6A-1/74AS648
			I:10D4/5A-1/74AS648 I:10D2/4A-1/74AS648 O:12D6/1C-19/PAL16L8D
			I:45C6/6G-1/PAL16R4D I:45C6/6G-2/PAL16R4D
DBIT	#45	2	T:45E2/7G-16/PAL16R8B I:45F2/8H-6/74LS248
DD0	5		B:46D2/1H-23/AM29833 O:46E1/RN21-2/4610X 101 103
			B:49C3/15H-3/SIP1M9 B:49E3/15K-3/SIP1M9 B:49G3/15M-3/SIP1M9
DD1	5		B:46D2/1H-22/AM29833 O:46E1/RN21-3/4610X 101 103
			B:49C3/15H-6/SIP1M9 B:49E3/15K-6/SIP1M9 B:49G3/15M-6/SIP1M9
DD10	5		B:46D4/2H-22/AM29833 O:46E2/RN22-3/4610X 101 103
			B:49C5/15J-6/SIP1M9 B:49E5/15L-6/SIP1M9 B:49G5/15N-6/SIP1M9
DD11	5		B:46D4/2H-21/AM29833 O:46E2/RN22-4/4610X 101 103
			B:49C5/15J-10/SIP1M9 B:49E5/15L-10/SIP1M9 B:49G5/15N-10/SIP1M9
DD12	5		B:46D4/2H-20/AM29833 O:46F2/RN22-5/4610X 101 103
			B:49C5/15J-13/SIP1M9 B:49E5/15L-13/SIP1M9 B:49G5/15N-13/SIP1M9
DD13	5		B:46D4/2H-19/AM29833 O:46F2/RN22-6/4610X 101 103
			B:49C5/15J-16/SIP1M9 B:49E5/15L-16/SIP1M9 B:49G5/15N-16/SIP1M9
DD14	5		B:46D4/2H-18/AM29833 O:46F2/RN22-7/4610X 101 103
			B:49C5/15J-20/SIP1M9 B:49E5/15L-20/SIP1M9 B:49G5/15N-20/SIP1M9
DD15	5		B:46D4/2H-17/AM29833 O:46F2/RN22-8/4610X 101 103
			B:49C5/15J-23/SIP1M9 B:49E5/15L-23/SIP1M9 B:49G5/15N-23/SIP1M9
DD16	5		B:46D4/2H-16/AM29833 O:46F2/RN22-9/4610X 101 103
			B:49C5/15J-25/SIP1M9 B:49E5/15L-25/SIP1M9 B:49G5/15N-25/SIP1M9
DD17	8		B:46D4/2H-15/AM29833 O:46F2/RN22-10/4610X 101 103
			I:49C5/15J-29/SIP1M9 O:49C5/15J-26/SIP1M9 I:49E5/15L-29/SIP1M9
			I:49G5/15N-29/SIP1M9 O:49G5/15N-26/SIP1M9
DD2	5		B:46D2/1H-21/AM29833 O:46E1/RN21-4/4610X 101 103
			B:49C3/15H-10/SIP1M9 B:49E3/15K-10/SIP1M9 B:49G3/15M-10/SIP1M9
DD3	5		B:46D2/1H-20/AM29833 O:46F1/RN21-5/4610X 101 103
			B:49C3/15H-13/SIP1M9 B:49E3/15K-13/SIP1M9 B:49G3/15M-13/SIP1M9
DD4	5		B:46D2/1H-19/AM29833 O:46F1/RN21-6/4610X 101 103
			B:49C3/15H-16/SIP1M9 B:49E3/15K-16/SIP1M9 B:49G3/15M-16/SIP1M9
DD5	5		B:46D2/1H-18/AM29833 O:46F1/RN21-7/4610X 101 103
			B:49C3/15H-20/SIP1M9 B:49E3/15K-20/SIP1M9 B:49G3/15M-20/SIP1M9
DD6	5		B:46D2/1H-17/AM29833 O:46F1/RN21-8/4610X 101 103
			B:49C3/15H-23/SIP1M9 B:49E3/15K-23/SIP1M9 B:49G3/15M-23/SIP1M9
DD7	5		B:46D2/1H-16/AM29833 O:46F1/RN21-9/4610X 101 103
			B:49C3/15H-25/SIP1M9 B:49E3/15K-25/SIP1M9 B:49G3/15M-25/SIP1M9
DD8	8		B:46D2/1H-15/AM29833 O:46F1/RN21-10/4610X 101 103
			I:49C3/15H-29/SIP1M9 O:49C3/15H-26/SIP1M9 I:49E3/15K-29/SIP1M9
			O:49E3/15K-26/SIP1M9 I:49G3/15M-29/SIP1M9 O:49G3/15N-26/SIP1M9
DD9	5		B:46D4/2H-23/AM29833 O:46E2/RN22-2/4610X 101 103
			B:49C5/15J-3/SIP1M9 B:49E5/15L-3/SIP1M9 B:49G5/15N-3/SIP1M9
DDBAPR	#45	2	B:45C6/6G-18/PAL16R4D I:45E7/2D-3/74F74
DISB~	#46	1	B:46C5/2F-16/PAL16L8B
DISP1	#40	2	B:40D7/35C-12/MC68705U3 I:40E3/35A-13/7406
DISP2	#40	2	B:40D7/35C-13/MC68705U3 I:40E2/35A-11/7406
DISP3	#40	2	B:40D7/35C-14/MC68705U3 I:40E2/35A-9/7406
DISP4	#40	2	B:40D7/35C-15/MC68705U3 I:40E2/35A-5/7406
DISP5	#40	2	B:40D7/35C-16/MC68705U3 I:40E1/35A-3/7406
DIS~	#46	3	O:46C5/2F-19/PAL16L8B I:46D5/14G-13/74F08
			B:46D5/LED5-2/RED
DLYO~	#36	2	B:36B5/14D-19/PAL16R4D I:36D4/12D-3/PAL16R6D
DLY1~	#36	2	B:36B3/15D-12/PAL16R4D I:36D4/12D-2/PAL16R6D
DMA12~	#36	1	T:36B5/14D-15/PAL16R4D
DMAF~	#36	1	T:36B5/14D-14/PAL16R4D
DOREF~	#6	1	T:6D2/10D-17/PAL16R8D
DOUBLE	2		I:24A2/21G-6/PAL16L8D O:33B7/28F-A7/ND DELILAH
DP~1	3		B:2F2/RN2-2/4610X 101 102 I:2H3/A-C25
			O:40E3/35A-12/7406
DP~2	3		B:2F2/RN2-3/4610X 101 102 I:2H4/A-C26
			O:40E2/35A-10/7406
DP~3	3		B:2F2/RN2-4/4610X 101 102 I:2H4/A-C27
			O:40E2/35A-8/7406
DP~4	3		B:2G2/RN2-5/4610X 101 102 I:2H4/A-C28
			O:40E2/35A-6/7406
DP~5	3		B:2G2/RN2-6/4610X 101 102 I:2H4/A-C29
			O:40E1/35A-4/7406
DSR~	4		B:2D3/A-C11 B:2G3/A-A12 B:2G2/RN2-7/4610X 101 102
			B:2G3/A-C9
DSTB~	5		I:11D5/6B-1/74AS646 I:11D5/6B-2/74AS646
			I:11D4/7B-1/74AS646 I:11D4/7B-2/74AS646 B:12D2/11D-17/PAL16L8D
DT~	2		I:25F5/18F-2/PAL16R4D O:39C7/34D-K1/ND DELDGA
DVACC~	2		I:24A2/21G-3/PAL16L8D O:39C7/34D-G1/ND DELDGA
EADR~	5		B:6D4/5D-12/PAL16R4D I:12E4/2C-3/PAL16L8D
			I:14D6/6C-1/74PCT374 I:14D5/4B-1/74PCT374 I:14D3/3B-1/74PCT374
EAUTO~	3		B:2E2/RN1-7/4610X 101 102 O:2D4/A-C19
			I:42C6/33G-4/AM29C821

EBADR	4	I:10D6/6A-2/74AS648 I:10D4/5A-2 74AS648 I:10D2/4A-2/74AS648 B:12D6/1C-17/PAL16L8D!
EBD~	4	I:10D6/6A-21/74AS648 I:10D4/5A-21/74AS648 I:10D2/4A-21/74AS648 B:12D6/1C-13/PAL16L8D!
EBUS	3	I:3F5/7F-1/74F14 O:3E5/B-B3!! O:3F5/RN13-2/4610X 101 102!
EBUS~	2	O:3F5/7F-2/74F14! I:12D6/1C-6/PAL16L8D
ECCR	3	O:33B7/28F-Q14/ND DELILAH! I:46C5/2F-8/PAL16L8B I:48E4/3F-6/PAL16L8D
ECD~	3	O:24A2/21G-19/PAL16L8D! I:25D6/24F-18/TMM2018D_25 I:25D3/23F-18/TMM2018D_25
ECREQ	8	I:11D5/6B-23/74AS646 I:11D4/7B-23/74AS646 I:14D6/6C-11/74PCT374 I:14D5/4B-11/74PCT374 I:14D3/3B-11/74PCT374 O:39C7/34D-F1/ND DELDGA! B:45C4/9G-12/PAL16R4D! I:45C4/9G-1/PAL16R4D
ECS~	#18 2	I:18D2/30B-1/74F139 O:18C1/29A-3/74F08!
ECSL~	5	B:18B2/15F-18/PAL16L8D! I:20E6/8C-11/74PCT373 I:20E6/8C-1/74PCT373 I:20E5/9C-11/74PCT373 I:20E5/9C-1/74PCT373
ECSR~	2	I:26D4/27H-19/74PCT244 O:39C7/34D-BG ND DELDGA!
EDO~	2	I:26D4/27H-6/74PCT244 O:39C7/34D-A8/ND DELDGA!
EHISEG~	#45 2	T:45E2/7G-12/PAL16R8B! I:45G3/8K-1/HP5082 7433
E10D~	2	B:6D4/5D-13/PAL16R4D! I:7D2/3A-1/74F241
E10R~	2	O:39C7/34D-A6/ND DELDGA! I:42C6/33G-1/AM29C821
E1PL~	2	B:24A2/21G-16/PAL16L8D! I:28E5/9B-19/74PCT245
E1PUR~	3	B:24A2/21G-18/PAL16L8D! I:28B7/8B-1/74LS244 I:28B7/8B-19/74LS244
E1PU~	2	B:24A2/21G-17/PAL16L8D! I:28E3/10B-19/74PCT245
ELOWSEG~	#45 2	T:45E2/7G-14/PAL16R8B! I:45G3/8K-7/HP5082 7433
ELOW~	17	B:18B2/15F-15/PAL16L8D! I:22B7/19C-9/IDT6168A_20 I:22B6/18C-9/IDT6168A_20 I:22B4/17C-9/IDT6168A_20 I:22B2/16C-9/IDT6168A_20
+		I:22C6/22C-9/IDT6168A_20 I:22C7/23C-9/IDT6168A_20 I:22C4/21C-9/IDT6168A_20
+		I:22C2/20C-9/IDT6168A_20 I:22D6/26C-9/IDT6168A_20 I:22D7/27C-9/IDT6168A_20
+		I:22D4/25C-9/IDT6168A_20 I:22D2/24C-9/IDT6168A_20 I:22F6/30C-9/IDT6168A_20
+		I:22F7/31C-9/IDT6168A_20 I:22F4/29C-9/IDT6168A_20 I:22F2/28C-9/IDT6168A_20
EMCL~	3	I:24A2/21G-7/PAL16L8D! O:41E4/28A-6/74LS273! B:41E2/LED2-2/RED!
EMD~	3	I:11D5/6B-21/74AS646 I:11D4/7B-21/74AS646 B:12D2/11D-18/PAL16L8D!
EMIDSEG~	#45 2	T:45E2/7G-13/PAL16R8B! I:45G3/8K-4/HP5082 7433
EMPID~	2	I:26D4/27H-4/74PCT244 O:39C7/34D-J3 ND DELDGA!
EMP~	2	O:39C7/34D-J11/ND DELDGA! I:40D7/35C-17/MC68705U3
EORF~	4	I:24A3/32C-10/74F32 B:36E5/13D-16/PAL16L8D! O:39A4/RN17-4/4610X 101 103! I:39C7/34D-N4/ND DELDGA
EPANS~	4	O:39C7/34D-C5/ND DELDGA! I:40G4/32B-1/74LS374 I:40G6/33B-1/74LS244 I:40G6/33B-19/74LS244
EPEAL~	#47 3	B:47D7/4F-17/PAL16L8B! I:47E2/4C-1/74PCT374 I:47E4/6D-1/74PCT374
EPEA~	4	I:6D6/8D-11/PAL16L8B O:6C7/12C-6/74F32! I:13E5/8A-1/74ALS534 I:13E3/9A-1/74ALS534
EPESL~	#47 3	B:47D7/4F-18/PAL16L8B! I:47C4/3C-1/74PCT374 I:47C2/7C-1/74PCT374
EPES~	4	I:6D6/8D-9/PAL16L8B O:6C7/12C-3/74F32! I:13C5/10A-1/74ALS534 I:13C3/12A-1/74ALS534
EPMAP~	3	B:24A2/21G-14/PAL16L8D! I:29B3/22G-18/TMM2018D_25 I:29B6/23G-18/TMM2018D_25
EPTI~	3	B:24A2/21G-15/PAL16L8D! I:30D3/17B-19/74PCT245 I:30D5/18B-19/74PCT245
EPT~	3	B:24A2/21G-13/PAL16L8D! I:29D3/24G-18/TMM2018D_25 I:29D6/25G-18/TMM2018D_25
ERF~	3	I:32F5/34F-18/TMM2018D_25 I:32F7/35F-18/TMM2018D_25 B:34D3/19F-19/PAL16R4D!
ESTOF~	5	I:28E3/10B-1/74PCT245 I:28E5/9B-1/74PCT245 I:32F2/32F-19/74PCT245 I:32F3/33F-19/74PCT245 O:39C7/34D-N9/ND DELDGA!
ETRAP~	2	I:33B7/28F-Q6/ND DELILAH B:36E5/13D-14/PAL16L8D!
EUPP~	17	B:18B2/15F-16/PAL16L8D! I:21B7/19D-9/IDT6168A_20 I:21B6/18D-9/IDT6168A_20 I:21B4/17D-9/IDT6168A_20 I:21B2/16D-9/IDT6168A_20
+		I:21C6/22D-9/IDT6168A_20 I:21C7/23D-9/IDT6168A_20 I:21C4/21D-9/IDT6168A_20
+		I:21C2/20D-9/IDT6168A_20 I:21D6/26D-9/IDT6168A_20 I:21D7/27D-9/IDT6168A_20
+		I:21D4/25D-9/IDT6168A_20 I:21D2/24D-9/IDT6168A_20 I:21F6/30D-9/IDT6168A_20
+		I:21F7/31D-9/IDT6168A_20 I:21F4/29D-9/IDT6168A_20 I:21F2/28D-9/IDT6168A_20
EWCA~	3	B:18B2/15F-17/PAL16L8D! I:18C1/29A-2/74F08 I:33B7/28F-Q4/ND DELILAH
EW~0	3	O:18D2/30B-4/74F139! I:20B7/28B-19/74LS245 I:20C7/29B-19/74LS245
EW~1	3	O:18D2/30B-5/74F139! I:20B6/24B-19/74LS245 I:20C6/27B-19/74LS245
EW~2	3	O:18D2/30B-6/74F139! I:20B4/20B-19/74LS245

EW~3	3	I:20C4/21B-19/74LS245 O:18D2/30B-7/74F139 I:20B3/16B-19/74LS245 I:20C3/19B-19/74LS245 B:12D6/1C-16/PAL16L8D
FAPR	#12 1	I:47C2/7C-7/74PCT374 B:47B1/RN4-5/4610X 101 222
FATAL	#47 2	I:13C3/12A-3/74ALS534 I:18B2/15F-8/PAL16L8D
FETCH	4	O:39C7/34D-M6/ND DELDGA I:47C2/7C-3/74PCT374 B:32F2/32F-18/74PCT245 B:33B7/28F-C15/ND DELILAH
FIDB0	2	B:32F2/32F-17/74PCT245 B:33B7/28F-A15/ND DELILAH
FIDB1	2	B:32F3/33F-16/74PCT245 B:33B7/28F-B12/ND DELILAH
FIDB10	2	B:32F3/33F-15/74PCT245 B:33B7/28F-C12/ND DELILAH
FIDB11	2	B:32F3/33F-14/74PCT245 B:33B7/28F-A12/ND DELILAH
FIDB12	2	B:32F3/33F-13/74PCT245 B:33B7/28F-D11/ND DELILAH
FIDB13	2	B:32F3/33F-12/74PCT245 B:33B7/28F-A11/ND DELILAH
FIDB14	2	B:32F3/33F-11/74PCT245 B:33B7/28F-C11/ND DELILAH
FIDB15	2	B:32F2/32F-16/74PCT245 B:33B7/28F-B14/ND DELILAH
FIDB2	2	B:32F2/32F-15/74PCT245 B:33B7/28F-A14/ND DELILAH
FIDB3	2	B:32F2/32F-14/74PCT245 B:33B7/28F-D13/ND DELILAH
FIDB4	2	B:32F2/32F-13/74PCT245 B:33B7/28F-D12/ND DELILAH
FIDB5	2	B:32F2/32F-12/74PCT245 B:33B7/28F-E11/ND DELILAH
FIDB6	2	B:32F2/32F-11/74PCT245 B:33B7/28F-B13/ND DELILAH
FIDB7	2	B:32F3/33F-18/74PCT245 B:33B7/28F-A13/ND DELILAH
FIDB8	2	B:32F3/33F-17/74PCT245 B:33B7/28F-C13/ND DELILAH
FIDB9	2	I:27D3/18G-1/74FCT521A O:39C7/34D-L8 ND DELDGA
FMISS	2	I:18B2/15F-1/PAL16L8D I:36E5/17D-6/PAL16L8D
FORM	3	O:39C7/34D-M8/ND DELDGA
FUL~	2	O:39C7/34D-K12/ND DELDGA I:40G6/33B-15/74LS244
GND	166	\$\$OVERFLOW\$\$ B:2B2/A-A17 B:2B2/A-A18 B:2B3/A-A19 B:2B3/A-A20 B:2B3/A-A21 B:2B3/A-A22 B:2B3/A-A23 B:2B4/A-A24 B:2B4/A-A25 B:2B4/A-A26 B:2B4/A-A27 B:2B4/A-A28 B:2B5/A-A29 B:2B5/A-A32 B:2B5/A-B32 B:2B5/A-C32 B:3H2/B-C1 B:3H3/B-A32 B:3H3/B-B32 B:3H3/B-C32 I:3F2/17G-1/74LS244 I:3F2/17G-19/74LS244 I:3F3/16G-1/74LS244 I:3F3/16G-19/74LS244 I:3F4/15C-1/74LS244 I:3F4/15C-19/74LS244 I:3A2/23A-1/74LS244 I:3A2/23A-19/74LS244 I:3A3/22A-1/74LS244 I:3A3/22A-19/74LS244 I:3A4/16A-1/74LS244 I:3A4/16A-19/74LS244 I:3A7/21A-1/74LS374 B:3C2/STR1-1 STR1 B:3H2/B-A1 B:3H2/B-B1 B:4D4/C1-2/10nF B:4G3/C-A1 B:4G4/C-B1 B:4G4/C-C1 B:4G4/C-B32 B:4G4/C-C32 B:4G4/C-A32 I:7D2/3A-15/74F241 I:25D6/24F-20/TMM2018D_25 I:25B6/20F-18/TMM2018D_25 I:25B6/20F-20/TMM2018D_25 B:25F7/SW1-2/SECME090320102 I:25G6/21H-12/74S260 I:25G6/21H-13/74S260 I:25B3/16F-18/TMM2018D_25 I:25B3/16F-20/TMM2018D_25 I:25G3/21F-17/AM9150_20 I:25G3/21F-19/AM9150_20 I:25D3/23F-20/TMM2018D_25 I:27D3/18G-2/74FCT521A I:27D3/18G-3/74FCT521A I:27D3/18G-5/74FCT521A I:28B7/8B-2/74LS244 I:28B7/8B-4/74LS244 I:28B7/8B-6/74LS244 I:28B7/8B-8/74LS244 I:28B7/8B-11/74LS244 I:28B7/8B-13/74LS244 I:28B7/8B-15/74LS244 I:29B3/22G-20/TMM2018D_25 I:29F4/20G-11/IMS1403_25 O:13B3/11B-12/74LS04 I:13C3/12A-4/74ALS534 I:47C2/7C-4/74PCT374 I:7E3/1F-9/74F04 O:48C7/14F-15/AM29C821 I:6D2/10D-13/PAL16R8D I:12D6/1C-8/PAL16L8D I:13B3/11B-13/74LS04 I:48C7/14F-10/AM29C821 I:44B5/4H-1/AM29C821 I:46C5/2F-11/PAL16L8B I:48E4/3F-1/PAL16L8D I:50E6/6F-12/PAL16R8D O:25G6/21H-5/74S260 I:36D4/12D-8/PAL16R6D I:39A5/13G-1/74F04 O:39A4/RN17-8/4610X 101 103 O:39A5/13G-2/74F04 I:39C7/34D-E1/ND DELDGA I:25F5/18F-7/PAL16R4D I:25G6/21H-3/74S260 O:27D6/19G-19/74FCT521A I:25F5/18F-8/PAL16R4D I:25G6/21H-2/74S260 O:27D3/18G-19/74FCT521A O:2D5/A-A7 B:42E5/R9-2/2.2KOHM B:42E5/R10-2/2.2KOHM B:42E5/R2-2/5.6KOHM O:4C6/5C-3/74F244 I:12D6/1C-7/PAL16L8D O:4C6/5C-7/74F244 I:8C3/3D-10/AM29C821 I:48E4/3F-9/PAL16L8D I:48C4/13F-4/AM29C821 O:4C6/5C-5/74F244 I:7D4/2A-4/7438 I:8C3/3D-7/AM29C821 O:4C6/5C-14/74F244 I:8C3/3D-5/AM29C821 I:45C6/6G-4/PAL16R4D O:4C6/5C-18/74F244 I:33A4/34G-18/74PCT374 O:4E3/33C-3/74F244 I:33A4/34G-17/74PCT374 O:4E3/33C-5/74F244 I:33A4/34G-14/74PCT374 O:4E3/33C-7/74F244 I:33A4/34G-13/74PCT374 O:4E3/33C-9/74F244 I:33A4/34G-8/74PCT374 O:4C6/5C-12/74F244 I:8C3/3D-6/AM29C821 O:4E3/33C-16/74F244 I:7C4/1F-13/74F04 I:8C3/3D-9/AM29C821 O:4E3/33C-14/74F244 I:39C7/34D-B10/ND DELDGA I:3D3/19A-17/74LS244 I:13C5/10A-19/74ALS534 T:13E5/8A-19/74ALS534 O:19C4/23B-11/27256 I:20E6/8C-18/74PCT374 T:20E6/8C-19/74PCT373 B:20C7/29B-11/74LS245 B:20C6/27B-11/74LS245 B:20C4/21B-11/74LS245 B:20C3/19B-11/74LS245 O:26D4/27H-9/74PCT374

B:28E5/9B-11/74PCT245! B:30D5/18B-9/74PCT245! B:32F5/34F-9/TMM2018D 25!
B:32F2/32F-2/74PCT245! B:32H2/RN10-2/4610X_101_102! I:35D5/15B-17/74PCT244

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IDB1 26 B:39C7/34D-G13/ND DELDGA! T:40G4/32B-2/74LS374! I:41E4/28A-18/74LS273
O:41C7/24A-3/74PCT244! O:41C5/25A-3/74PCT244! B:42B3/32H-27/SC2661!
O:42C6/33G-14/AM29C821! T:47C4/3C-19/74PCT374! T:47E4/6D-19/74PCT374!
I:3D3/19A-15/74LS244 T:13C5/10A-16/74ALS534!
T:13E5/8A-16/74ALS534! O:19C4/23B-12/27256! I:20E6/8C-17/74PCT373
T:20E6/8C-16/74PCT373! B:20C7/29B-12/74LS245! B:20C6/27B-12/74LS245!
B:20C4/21B-12/74LS245! B:20C3/19B-12/74LS245! O:26D4/27H-7/74PCT244!
B:28E5/9B-12/74PCT245! B:30D5/18B-8/74PCT245! B:32F5/34F-10/TMM2018D 25!
B:32F2/32F-3/74PCT245! B:32H2/RN10-3/4610X_101_102! I:35D5/15B-15/74PCT244

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IDB10 20 B:39C7/34D-G11/ND DELDGA! T:40G4/32B-5/74LS374! I:41E4/28A-17/74LS273
O:41C7/24A-5/74PCT244! O:41C5/25A-5/74PCT244! B:42B3/32H-28/SC2661!
O:42C6/33G-15/AM29C821! T:47C4/3C-16/74PCT374! T:47E4/6D-16/74PCT374!
I:3D2/17A-13/74LS244 T:13E3/9A-15/74ALS534!
T:13C3/12A-15/74ALS534! O:19C6/26B-13/27256! I:20E5/9C-14/74PCT373
T:20E5/9C-15/74PCT373! B:20B7/28B-13/74LS245! B:20B6/24B-13/74LS245!
B:20B4/20B-13/74LS245! B:20B3/16B-13/74LS245! B:28E3/10B-13/74PCT245!
B:30D3/17B-7/74PCT245! B:32F7/35F-11/TMM2018D 25! B:32F3/33F-4/74PCT244!
B:32H4/RN11-3/4610X_101_102! I:35D3/14B-13/74PCT244 O:40G6/33B-14/74LS244

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IDB11 21 O:41C2/27A-7/74PCT244! T:47C2/7C-15/74PCT374! T:47E2/4C-15/74PCT374!
I:3D2/17A-11/74LS244 T:13E3/9A-12/74ALS534!
T:13C3/12A-12/74ALS534! O:19C6/26B-15/27256! I:20E5/9C-13/74PCT373
T:20E5/9C-12/74PCT373! B:20B7/28B-14/74LS245! B:20B6/24B-14/74LS245!
B:20B4/20B-14/74LS245! B:20B3/16B-14/74LS245! B:28E3/10B-14/74PCT245!
B:30D3/17B-6/74PCT245! B:32F7/35F-13/TMM2018D 25! B:32F3/33F-5/74PCT244!
B:32H4/RN11-4/4610X_101_102! I:35D3/14B-11/74PCT244 O:40G6/33B-12/74LS244

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IDB12 21 O:41C2/27A-9/74PCT244! O:42C6/33G-19/AM29C821! T:47C2/7C-12/74PCT374!
T:47E2/4C-12/74PCT374!
I:3D2/17A-8/74LS244 T:13E3/9A-9/74ALS534!
T:13C3/12A-9/74ALS534! O:19C6/26B-16/27256! I:20E5/9C-8/74PCT373
T:20E5/9C-9/74PCT373! B:20B7/28B-15/74LS245! B:20B6/24B-15/74LS245!
B:20B4/20B-15/74LS245! B:20B3/16B-15/74LS245! B:28E3/10B-15/74PCT245!
B:30D3/17B-5/74PCT245! B:32F7/35F-14/TMM2018D 25! B:32F3/33F-6/74PCT244!
B:32H4/RN11-5/4610X_101_102! I:35D3/14B-8/74PCT244 O:40G6/33B-9/74LS244
O:41C2/27A-12/74PCT244! O:42C6/33G-20/AM29C821! T:47C2/7C-9/74PCT374!
T:47E2/4C-9/74PCT374!

IDB13 21 I:3D2/17A-6/74LS244 T:13E3/9A-6/74ALS534!
T:13C3/12A-6/74ALS534! O:19C6/26B-17/27256! I:20E5/9C-7/74PCT373
T:20E5/9C-6/74PCT373! B:20B7/28B-16/74LS245! B:20B6/24B-16/74LS245!
B:20B4/20B-16/74LS245! B:20B3/16B-16/74LS245! B:28E3/10B-16/74PCT245!
B:30D3/17B-4/74PCT245! B:32F7/35F-15/TMM2018D 25! B:32F3/33F-7/74PCT244!
B:32H4/RN11-6/4610X_101_102! I:35D3/14B-6/74PCT244 O:40G6/33B-7/74LS244
O:41C2/27A-14/74PCT244! O:42C6/33G-21/AM29C821! T:47C2/7C-6/74PCT374!
T:47E2/4C-6/74PCT374!

IDB14 21 I:3D2/17A-4/74LS244 T:13E3/9A-5/74ALS534!
T:13C3/12A-5/74ALS534! O:19C6/26B-18/27256! I:20E5/9C-4/74PCT373
T:20E5/9C-5/74PCT373! B:20B7/28B-17/74LS245! B:20B6/24B-17/74LS245!
B:20B4/20B-17/74LS245! B:20B3/16B-17/74LS245! B:28E3/10B-17/74PCT245!
B:30D3/17B-3/74PCT245! B:32F7/35F-16/TMM2018D 25! B:32F3/33F-8/74PCT244!
B:32H4/RN11-7/4610X_101_102! I:35D3/14B-4/74PCT244 O:40G6/33B-5/74LS244
O:41C2/27A-16/74PCT244! O:42C6/33G-22/AM29C821! T:47C2/7C-5/74PCT374!
T:47E2/4C-5/74PCT374!

IDB15 21 I:3D2/17A-2/74LS244 T:13E3/9A-2/74ALS534!
T:13C3/12A-2/74ALS534! O:19C6/26B-19/27256! I:20E5/9C-3/74PCT373
T:20E5/9C-2/74PCT373! B:20B7/28B-18/74LS245! B:20B6/24B-18/74LS245!
B:20B4/20B-18/74LS245! B:20B3/16B-18/74LS245! B:28E3/10B-18/74PCT245!
B:30D3/17B-2/74PCT245! B:32F7/35F-17/TMM2018D 25! B:32F3/33F-9/74PCT245!
B:32H4/RN11-8/4610X_101_102! I:35D3/14B-2/74PCT244 O:40G6/33B-3/74LS244
O:41C2/27A-18/74PCT244! O:42C6/33G-23/AM29C821! T:47C2/7C-2/74PCT374!
T:47E2/4C-2/74PCT374!

IDB2 27 I:3D3/19A-13/74LS244 T:13C5/10A-15/74ALS534!
T:13E5/8A-15/74ALS534! O:19C4/23B-13/27256! I:20E6/8C-14/74PCT373
T:20E6/8C-15/74PCT373! B:20C7/29B-13/74LS245! B:20C6/27B-13/74LS245!
B:20C4/21B-13/74LS245! B:20C3/19B-13/74LS245! O:26D4/27H-5/74PCT244!
B:28E5/9B-13/74PCT245! B:30D5/18B-7/74PCT245! B:32F5/34F-11/TMM2018D 25!
B:32F2/32F-4/74PCT245! B:32H2/RN10-4/4610X_101_102! B:34D4/22F-12/PAL16R4D!

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IDB3 25 I:35D5/15B-13/74PCT244 B:39C7/34D-H13/ND DELDGA! T:40G4/32B-6/74LS374!
I:41E4/28A-14/74LS273 O:41C7/24A-7/74PCT244! O:41C5/25A-7/74PCT244!
B:42B3/32H-1/SC2661! O:42C6/33G-16/AM29C821! T:47C4/3C-15/74PCT374!
T:47E4/6D-15/74PCT374!
I:3D3/19A-11/74LS244 T:13C5/10A-12/74ALS534!
T:13E5/8A-12/74ALS534! O:19C4/23B-15/27256! I:20E6/8C-13/74PCT373
T:20E6/8C-12/74PCT373! B:20C7/29B-14/74LS245! B:20C6/27B-14/74LS245!
B:20C4/21B-14/74LS245! B:20C3/19B-14/74LS245! B:28E5/9B-14/74PCT245!
B:30D5/18B-6/74PCT245! B:32F5/34F-13/TMM2018D 25! B:32F2/32F-5/74PCT245!
B:32H2/RN10-5/4610X_101_102! I:35D5/15B-11/74PCT244
B:39C7/34D-H12/ND DELDGA! T:40G4/32B-9/74LS374! I:41E4/28A-13/74LS273
O:41C7/24A-9/74PCT244! O:41C5/25A-9/74PCT244! B:42B3/32H-2/SC2661!

IDB4	26	O:42C6/33G-17/AM29C821! T:47C4/3C-12/74PCT374! T:47E4/6D-12/74PCT374! I:3D3/19A-8/74LS244 T:13C5/10A-9/74ALS534! T:13E5/8A-9/74ALS534! O:19C4/23B-16/27256! I:20E6/8C-8/74PCT373 T:20E6/8C-9/74PCT373! B:20C7/29B-15/74LS245! B:20C6/27B-15/74LS245! B:20C4/21B-15/74LS245! B:20C3/19B-15/74LS245! O:26D4/27H-3/74PCT244! B:28E5/9B-15/74PCT245! B:30D5/18B-5/74PCT245! B:32F5/34F-14/TMM2018D 25! B:32F2/32F-6/74PCT245! B:32H2/RN10-6/4610X_101_102! I:35D5/15B-8/74PCT244
IDB5	24	I:39C7/34D-H11/ND DELDGA T:40G4/32B-12/74LS374! I:41E4/28A-8/74LS273 O:41C7/24A-12/74PCT244! O:41C5/25A-12/74PCT244! B:42B3/32H-5/SC2661! O:42C6/33G-18/AM29C821! T:47C4/3C-9/74PCT374! T:47E4/6D-9/74PCT374! I:3D3/19A-6/74LS244 T:13C5/10A-6/74ALS534! T:13E5/8A-6/74ALS534! O:19C4/23B-17/27256! I:20E6/8C-7/74PCT373 T:20E6/8C-6/74PCT373! B:20C7/29B-16/74LS245! B:20C6/27B-16/74LS245! B:20C4/21B-16/74LS245! B:20C3/19B-16/74LS245! B:28E5/9B-16/74PCT245! B:30D5/18B-4/74PCT245! B:32F5/34F-15/TMM2018D 25! B:32F2/32F-7/74PCT245! B:32H2/RN10-7/4610X_101_102! I:35D5/15B-6/74PCT244 I:39C7/34D-H12/ND DELDGA
IDB6	24	T:40G4/32B-15/74LS374! I:41E4/28A-7/74LS273 O:41C7/24A-14/74PCT244! O:41C5/25A-14/74PCT244! B:42B3/32H-6/SC2661! T:47C4/3C-6/74PCT374! T:47E4/6D-6/74PCT374! I:3D3/19A-4/74LS244 T:13C5/10A-5/74ALS534! T:13E5/8A-5/74ALS534! O:19C4/23B-18/27256! I:20E6/8C-4/74PCT373 T:20E6/8C-5/74PCT373! B:20C7/29B-17/74LS245! B:20C6/27B-17/74LS245! B:20C4/21B-17/74LS245! B:20C3/19B-17/74LS245! B:28E5/9B-17/74PCT245! B:30D5/18B-3/74PCT245! B:32F5/34F-16/TMM2018D 25! B:32F2/32F-8/74PCT245! B:32H2/RN10-8/4610X_101_102! I:35D5/15B-4/74PCT244 I:39C7/34D-H13/ND DELDGA
IDB7	24	T:40G4/32B-16/74LS374! I:41E4/28A-4/74LS273 O:41C7/24A-16/74PCT244! O:41C5/25A-16/74PCT244! B:42B3/32H-7/SC2661! T:47C4/3C-5/74PCT374! T:47E4/6D-5/74PCT374! I:3D3/19A-2/74LS244 T:13C5/10A-2/74ALS534! T:13E5/8A-2/74ALS534! O:19C4/23B-19/27256! I:20E6/8C-3/74PCT373 T:20E6/8C-2/74PCT373! B:20C7/29B-18/74LS245! B:20C6/27B-18/74LS245! B:20C4/21B-18/74LS245! B:20C3/19B-18/74LS245! B:28E5/9B-18/74PCT245! B:30D5/18B-2/74PCT245! B:32F5/34F-17/TMM2018D 25! B:32F2/32F-9/74PCT245! B:32H2/RN10-9/4610X_101_102! I:35D5/15B-2/74PCT244 I:39C7/34D-H14/ND DELDGA
IDB8	21	T:40G4/32B-19/74LS374! I:41E4/28A-3/74LS273 O:41C7/24A-18/74PCT244! O:41C5/25A-18/74PCT244! B:42B3/32H-8/SC2661! T:47C4/3C-2/74PCT374! T:47E4/6D-2/74PCT374! I:3D2/17A-17/74LS244 T:13E3/9A-19/74ALS534! T:13C3/12A-19/74ALS534! O:19C6/26B-11/27256! I:20E5/9C-18/74PCT373 T:20E5/9C-19/74PCT373! B:20B7/28B-11/74LS245! B:20B6/24B-11/74LS245! B:20B4/20B-11/74LS245! B:20B3/16B-11/74LS245! B:28E3/10B-11/74PCT245! I:28B7/8B-17/74LS244 B:30D3/17B-9/74PCT245! B:32F7/35F-9/TMM2018D 25! B:32F3/33F-2/74PCT245! B:32H2/RN10-10/4610X_101_102! I:35D3/14B-17/74PCT244
IDB9	20	O:40G6/33B-18/74LS244! O:41C2/27A-3/74PCT244! T:47C2/7C-19/74PCT374! T:47E2/4C-19/74PCT374! I:3D2/17A-15/74LS244 T:13E3/9A-16/74ALS534! T:13C3/12A-16/74ALS534! O:19C6/26B-12/27256! I:20E5/9C-17/74PCT373 T:20E5/9C-16/74PCT373! B:20B7/28B-12/74LS245! B:20B6/24B-12/74LS245! B:20B4/20B-12/74LS245! B:20B3/16B-12/74LS245! B:28E3/10B-12/74PCT245! B:30D3/17B-8/74PCT245! B:32F7/35F-10/TMM2018D 25! B:32F3/33F-3/74PCT245! B:32H4/RN11-2/4610X_101_102! I:35D3/14B-15/74PCT244 O:40G6/33B-16/74LS244!
IHIT	#25	1 O:41C2/27A-5/74PCT244! T:47C2/7C-16/74PCT374! T:47E2/4C-16/74PCT374! T:25F5/18F-14/PAL16R4D!
ILOAD		2 O:4E3/33C-18/74F244! I:39C7/34D-C10/ND DELDGA
INR0		2 O:3G6/B-B6!! I:41C7/24A-17/74PCT244
INR1		2 O:3G6/B-B13!! I:41C7/24A-15/74PCT244
INR2		2 O:3G6/B-B7!! I:41C7/24A-13/74PCT244
INR3		2 O:3G5/B-B8!! I:41C7/24A-11/74PCT244
INR4		2 O:3G5/B-B17!! I:41C7/24A-8/74PCT244
INR5		2 O:3G5/B-B5!! I:41C7/24A-6/74PCT244
INR6		2 O:3G5/B-B4!! I:41C7/24A-4/74PCT244
INR7		2 O:3G5/B-B15!! I:41C7/24A-2/74PCT244
INTRQ	#33	2 B:33E5/TP1-1/TESTPOINT! O:33B7/28F-S11/ND DELILAH!
IOC0	#41	2 O:41E4/28A-19/74LS273! I:41F5/14A-5/74LS38
IOC1	#41	2 O:41E4/28A-16/74LS273! I:41F4/29A-5/74F08
IOC2	#41	2 O:41E4/28A-15/74LS273! I:41F5/14A-9/74LS38
IOC3	#41	2 O:41E4/28A-12/74LS273! I:41F5/14A-4/74LS38
IOD		4 T:6D2/10D-14/PAL16R8D! I:7D2/3A-11/74F241 I:7C5/8G-2/74F00 I:12E4/2C-6/PAL16L8D
ION1		2 O:33B7/28F-A6/ND DELILAH! I:40D7/35C-21/MC68705U3
IORQ		7 I:6D2/10D-3/PAL16R8D I:6D4/5D-9/PAL16R4D B:12D2/11D-14/PAL16L8D! I:36B6/25H-5/74F00 I:36B6/25H-9/74F00 O:39C7/34D-L6/ND DELDGA! I:45C4/9C-3/PAL16R4D
IOXERR		3 T:7D2/3A-9/74F241! O:7E1/RN13-G/4610X_101_102! I:33B7/28F-R13/ND DELILAH
ISEMRQ		2 O:4C6/5C-16/74F244! I:8C3/3D-4/AM29C821
ISTOP		2 O:4E3/33C-12/74F244! I:39C7/34D-A12/ND DELDGA
LA10		7 I:3F3/16G-13/74LS244 I:23D5/23H-17/74PCT244

LA11	7	I:29B3/22G-8/TMM2018D_25	I:29D3/24G-8/TMM2018D_25	I:29B6/23G-8/TMM2018D_25
		I:29D6/25G-8/TMM2018D_25	O:33B7/28F-M17/ND DELILAH	
		I:3F3/16G-11/74LS244	I:23D5/23H-15/74PCT244	
LA12	7	I:29B3/22G-7/TMM2018D_25	I:29D3/24G-7/TMM2018D_25	I:29B6/23G-7/TMM2018D_25
		I:29D6/25G-7/TMM2018D_25	O:33B7/28F-M15/ND DELILAH	
		I:3F3/16G-8/74LS244	I:23D5/23H-13/74PCT244	
LA13	7	I:29B3/22G-6/TMM2018D_25	I:29D3/24G-6/TMM2018D_25	I:29B6/23G-6/TMM2018D_25
		I:29D6/25G-6/TMM2018D_25	O:33B7/28F-L17/ND DELILAH	
		I:3F3/16G-6/74LS244	I:23D5/23H-11/74PCT244	
LA14	7	I:29B3/22G-5/TMM2018D_25	I:29D3/24G-5/TMM2018D_25	I:29B6/23G-5/TMM2018D_25
		I:29D6/25G-5/TMM2018D_25	O:33B7/28F-L15/ND DELILAH	
		I:3F3/16G-4/74LS244	I:23D5/23H-8/74PCT244	
LA15	7	I:29B3/22G-4/TMM2018D_25	I:29D3/24G-4/TMM2018D_25	I:29B6/23G-4/TMM2018D_25
		I:29D6/25G-4/TMM2018D_25	O:33B7/28F-K16/ND DELILAH	
		I:3F3/16G-2/74LS244	I:23D5/23H-6/74PCT244	
LA16	7	I:29B3/22G-3/TMM2018D_25	I:29D3/24G-3/TMM2018D_25	I:29B6/23G-3/TMM2018D_25
		I:29D6/25G-3/TMM2018D_25	O:33B7/28F-K17/ND DELILAH	
		I:3F2/17G-17/74LS244	I:23D5/23H-4/74PCT244	
LA17	7	I:29B3/22G-2/TMM2018D_25	I:29D3/24G-2/TMM2018D_25	I:29B6/23G-2/TMM2018D_25
		I:29D6/25G-2/TMM2018D_25	O:33B7/28F-K14/ND DELILAH	
		I:3F2/17G-15/74LS244	I:23D5/23H-2/74PCT244	
LA18	7	I:29B3/22G-1/TMM2018D_25	I:29D3/24G-1/TMM2018D_25	I:29B6/23G-1/TMM2018D_25
		I:29D6/25G-1/TMM2018D_25	O:33B7/28F-J17/ND DELILAH	
		I:3F2/17G-13/74LS244	I:23D3/15G-17/74PCT244	
LA19	7	I:29B3/22G-23/TMM2018D_25	I:29D3/24G-23/TMM2018D_25	I:29B6/23G-23/TMM2018D_25
		I:29D6/25G-23/TMM2018D_25	O:33B7/28F-K15/ND DELILAH	
		I:3F2/17G-11/74LS244	I:23D3/15G-15/74PCT244	
LA20	7	I:29B3/22G-22/TMM2018D_25	I:29D3/24G-22/TMM2018D_25	I:29B6/23G-22/TMM2018D_25
		I:29D6/25G-22/TMM2018D_25	O:33B7/28F-J16/ND DELILAH	
		I:3F2/17G-8/74LS244	I:23D3/15G-13/74PCT244	
LA21	3	I:29B3/22G-19/TMM2018D_25	I:29D3/24G-19/TMM2018D_25	I:29B6/23G-19/TMM2018D_25
		I:29D6/25G-19/TMM2018D_25	O:33B7/28F-H17/ND DELILAH	
		I:3F2/17G-6/74LS244	I:23D3/15G-11/74PCT244	
LA22	3	O:33B7/28F-J14/ND DELILAH		
		I:3F2/17G-4/74LS244	I:23D3/15G-8/74PCT244	
		O:33B7/28F-H16/ND DELILAH		
LA23	3	I:3F2/17G-2/74LS244	I:23D3/15G-6/74PCT244	
		O:33B7/28F-J15/ND DELILAH		
		I:32F5/34F-8/TMM2018D_25	I:32F7/35F-8/TMM2018D_25	
LAA0	3	O:33B7/28F-K1/ND DELILAH		
		I:32F5/34F-7/TMM2018D_25	I:32F7/35F-7/TMM2018D_25	
		O:33B7/28F-J4/ND DELILAH		
LAA1	3	I:32F5/34F-6/TMM2018D_25	I:32F7/35F-6/TMM2018D_25	
		O:33B7/28F-K2/ND DELILAH		
		I:32F5/34F-5/TMM2018D_25	I:32F7/35F-5/TMM2018D_25	
LAA2	3	O:33B7/28F-J3/ND DELILAH		
		I:23D3/15G-1/74PCT244	I:23D3/15G-19/74PCT244	
		I:23D5/23H-1/74PCT244	I:23D5/23H-19/74PCT244	O:24A2/21G-12/PAL16LS
LAA3	3	I:32F5/34F-4/TMM2018D_25	I:32F7/35F-4/TMM2018D_25	
		O:33B7/28F-L1/ND DELILAH	I:36B3/15D-9/PAL16R4D	
		I:32F5/34F-3/TMM2018D_25	I:32F7/35F-3/TMM2018D_25	
LAA4	3	O:33B7/28F-M1/ND DELILAH	I:36B3/15D-8/PAL16R4D	
		I:32F5/34F-2/TMM2018D_25	I:32F7/35F-2/TMM2018D_25	
		O:33B7/28F-K4/ND DELILAH		
LAA5	4	I:32F5/34F-1/TMM2018D_25	I:32F7/35F-1/TMM2018D_25	
		O:33B7/28F-N1/ND DELILAH	I:36B3/15D-7/PAL16R4D	
		I:3E7/4G-17/74F244	B:10D6/6A-13/74AS648	
LBA0	9	B:11D5/6B-11/74AS646	T:14D6/6C-19/74PCT374	I:44B2/3H-2/AM29CS21
		I:46C5/2F-3/PAL16L8B	B:46D2/1H-2/AM29833	I:47E4/6D-18/74PCT374
		O:47A5/RN25-2/4610X_101_102		
LBA1	9	I:3E7/4G-15/74F244	B:10D6/6A-14/74AS648	
		B:11D5/6B-10/74AS646	T:14D6/6C-16/74PCT374	I:44B2/3H-3/AM29CS21
		I:46C5/2F-4/PAL16L8B	B:46D2/1H-3/AM29833	I:47F4/6D-17/74PCT374
LBA2	8	O:47A5/RN25-3/4610X_101_102		
		I:3D7/5G-13/74F244	B:10D4/5A-15/74AS648	
		B:11D4/7B-9/74AS646	T:14D5/4B-15/74PCT374	I:44B5/4H-3/AM29CS21
LBA3	8	B:46D4/2H-4/AM29833	I:47E2/4C-14/74PCT374	O:47A4/RN24-4/4610X_101_102
		I:3D7/5G-11/74F244	B:10D4/5A-16/74AS648	
		B:11D4/7B-8/74AS646	T:14D5/4B-12/74PCT374	I:44B5/4H-4/AM29CS21
LBA4	8	B:46D4/2H-5/AM29833	I:47E2/4C-13/74PCT374	O:47B4/RN24-5/4610X_101_102
		I:3D7/5G-8/74F244	B:10D4/5A-17/74AS648	
		B:11D4/7B-7/74AS646	T:14D5/4B-9/74PCT374	I:44B5/4H-5/AM29CS21
LBA5	8	B:46D4/2H-6/AM29833	I:47E2/4C-8/74PCT374	O:47B4/RN24-6/4610X_101_102
		I:3D7/5G-6/74F244	B:10D4/5A-18/74AS648	

			B:11D4/7B-6/74AS646! T:14D5/4B-6/74PCT374! I:44B5/4H-6/AM29C821
			B:46D4/2H-7/AM29833! I:47E2/4C-7/74PCT374 O:47B4/RN24-7/4610X_101_102!
LBD14	8		I:3D7/5G-4/74F244 B:10D4/5A-19/74AS648!
			B:11D4/7B-5/74AS646! T:14D5/4B-5/74PCT374! I:44B5/4H-7/AM29C821
			B:46D4/2H-8/AM29833! I:47E2/4C-4/74PCT374 O:47B4/RN24-8/4610X_101_102!
LBD15	8		I:3D7/5G-2/74F244 B:10D4/5A-20/74AS648!
			B:11D4/7B-4/74AS646! T:14D5/4B-2/74PCT374! I:44B5/4H-8/AM29C821
			B:46D4/2H-9/AM29833! I:47E2/4C-3/74PCT374 O:47B4/RN24-9/4610X_101_102!
LBD16	5		B:10D2/4A-13/74AS648! T:14D3/3B-19/74PCT374!
			I:44B5/4H-9/AM29C821 I:47C4/3C-18/74PCT374 O:47A3/RN23-2/4610X_101_102!
LBD17	5		B:10D2/4A-14/74AS648! T:14D3/3B-16/74PCT374!
			I:44B5/4H-10/AM29C821 I:47C4/3C-17/74PCT374 O:47A3/RN23-3/4610X_101_102!
LBD18	5		B:10D2/4A-15/74AS648! T:14D3/3B-15/74PCT374!
			I:44B2/3H-11/AM29C821 I:47C4/3C-14/74PCT374 O:47A3/RN23-4/4610X_101_102!
LBD19	5		B:10D2/4A-16/74AS648! T:14D3/3B-12/74PCT374!
			I:44B5/4H-11/AM29C821 I:47C4/3C-13/74PCT374 O:47B3/RN23-5/4610X_101_102!
LBD2	8		I:3E7/4G-13/74F244 B:10D6/6A-15/74AS648!
			B:11D5/6B-9/74AS646! T:14D6/6C-15/74PCT374! I:44B2/3H-4/AM29C821
			B:46D2/1H-4/AM29833! I:47E4/6D-14/74PCT374 O:47A5/RN25-4/4610X_101_102!
LBD20	4		B:10D2/4A-17/74AS648! T:14D3/3B-9/74PCT374!
			I:47C4/3C-8/74PCT374 O:47B3/RN23-6/4610X_101_102!
LBD21	4		B:10D2/4A-18/74AS648! T:14D3/3B-6/74PCT374!
			I:47C4/3C-7/74PCT374 O:47B3/RN23-7/4610X_101_102!
LBD22	4		B:10D2/4A-19/74AS648! T:14D3/3B-5/74PCT374!
			I:47C4/3C-4/74PCT374 O:47B3/RN23-8/4610X_101_102!
LBD23	4		B:10D2/4A-20/74AS648! T:14D3/3B-2/74PCT374!
			I:47C4/3C-3/74PCT374 O:47B3/RN23-9/4610X_101_102!
LBD3	9		I:3E7/4G-11/74F244 B:10D6/6A-16/74AS648!
			B:11D5/6B-8/74AS646! T:14D6/6C-12/74PCT374! I:44B2/3H-5/AM29C821
			I:46C5/2F-5/PAL16L8B B:46D2/1H-5/AM29833! I:47E4/6D-13/74PCT374
			O:47B5/RN25-5/4610X_101_102!
LBD4	9		I:3E7/4G-8/74F244 B:10D6/6A-17/74AS648!
			B:11D5/6B-7/74AS646! T:14D6/6C-9/74PCT374! I:44B2/3H-6/AM29C821
			I:46C5/2F-6/PAL16L8B B:46D2/1H-6/AM29833! I:47E4/6D-8/74PCT374
			O:47B5/RN25-6/4610X_101_102!
LBD5	8		I:3E7/4G-6/74F244 B:10D6/6A-18/74AS648!
			B:11D5/6B-6/74AS646! T:14D6/6C-6/74PCT374! I:44B2/3H-7/AM29C821
			B:46D2/1H-7/AM29833! I:47E4/6D-7/74PCT374 O:47B5/RN25-7/4610X_101_102!
LBD6	8		I:3E7/4G-4/74F244 B:10D6/6A-19/74AS648!
			B:11D5/6B-5/74AS646! T:14D6/6C-5/74PCT374! I:44B2/3H-8/AM29C821
			B:46D2/1H-8/AM29833! I:47E4/6D-4/74PCT374 O:47B5/RN25-8/4610X_101_102!
LBD7	8		I:3E7/4G-2/74F244 B:10D6/6A-20/74AS648!
			B:11D5/6B-4/74AS646! T:14D6/6C-2/74PCT374! I:44B2/3H-9/AM29C821
			B:46D2/1H-9/AM29833! I:47E4/6D-3/74PCT374 O:47B5/RN25-9/4610X_101_102!
LBD8	8		I:3D7/5G-17/74F244 B:10D4/5A-13/74AS648!
			B:11D4/7B-11/74AS646! T:14D5/4B-19/74PCT374! I:44B2/3H-10/AM29C821
			B:46D4/2H-2/AM29833! I:47E2/4C-18/74PCT374 O:47A4/RN24-2/4610X_101_102!
LBD9	8		I:3D7/5G-15/74F244 B:10D4/5A-14/74AS648!
			B:11D4/7B-10/74AS646! T:14D5/4B-16/74PCT374! I:44B5/4H-2/AM29C821
			B:46D4/2H-3/AM29833! I:47E2/4C-17/74PCT374 O:47A4/RN24-3/4610X_101_102!
LCS	13		I:3A4/16A-11/74LS244 I:18B2/15F-5/PAL16L8D
			I:18C1/29A-1/74F08 I:26D4/27H-8/74PCT244 I:33B7/28F-P10 ND DELILAH
			I:34D3/19F-8/PAL16R4D I:34D4/22F-9/PAL16R4D T:36B5/14D-17/PAL16R4D
			I:36F2/9D-5/74F02 I:36F2/9D-6/74F02 O:39A4/RN17-7/4610X_101_103!
			I:39C7/34D-E3 ND DELDGA I:42A1/11B-1/74LS04
LDEXM	#34	1	T:34D4/22F-17/PAL16R4D!
LDR	#50	1	T:50B6/5F-15/PAL16R8D!
LERR	7		B:6D6/8D-13/PAL16L8B! T:46D2/1H-10/AM29833!
			T:46D4/2H-10/AM29833! I:46E5/8J-1/74LS112 I:46E7/8J-13/74LS112
			O:46F3/R21-2/3300HM! I:47D7/4F-8/PAL16L8B
LEVO	2		O:34D6/26H-12/PAL16L8B! I:40D7/35C-19/MC68705U3
LHIT	2		O:39C7/34D-M9 ND DELDGA! I:40D7/35C-20/MC68705U3
LOAD	4		O:2D4/A-C15/! B:4D1/RN3-2/4610X_101_102!
			I:4E3/33C-2/74F244 O:4C2/C-B12/!
LOCK	3		B:2E2/RN1-8/4610X_101_102! O:2D4 A-C20/!
			I:42C6/33G-5/AM29C821
LOEN25	#50	1	T:50B6/5F-16/PAL16R8D!
LOEN	4		I:44B2/3H-1/AM29C821 I:48E4/3F-4/PAL16L8D
			I:50B6/5F-2/PAL16R8D T:50E6/6F-13/PAL16R8D!
LPERR	2		I:6D6/8D-7/PAL16L8B O:46E7/8J-7/74LS112!
LSHADOW	10		I:3A4/16A-15/74LS244 I:24A2/21C-11/PAL16L8D
			I:24A3/17F-3/74F10 I:25F5/18F-4/PAL16R4D I:27D3/18G-4/74FCT521A
			O:33B7/28F-Q16/ND DELILAH! I:36B6/32C-4/74F3C I:36B6/32C-2/74F3C
			I:39C7/34D-F3 ND DELDGA O:39A4/RN17-6/4610X_101_103!
LUA0	20		I:3A3/22A-11/74LS244 O:17E4/31F-14/AM29841!
			I:19C6/26B-8/27256 I:19C4/23B-8/27256 I:22B7/19C-16/IDT6168A_20
			I:22B6/18C-16/IDT6168A_20 I:22B4/17C-16/IDT6168A_20 I:22B2/16C-16/IDT6168A_20
			I:22C6/22C-16/IDT6168A_20 I:22C7/23C-16/IDT6168A_20
			I:22C4/21C-16/IDT6168A_20 I:22C2/20C-16/IDT6168A_20 I:22D6/26C-16/IDT6168A_20
			I:22D7/27C-16/IDT6168A_20 I:22D4/25C-16/IDT6168A_20
			I:22D2/24C-16/IDT6168A_20 I:22F6/30C-16/IDT6168A_20 I:22F7/31C-16/IDT6168A_20

Case Name	Case Number	Case Details
LUA1	20	I:22F4/29C-16/IDT6168A_20 I:22F2/28C-16/IDT6168A_20 I:3A3/22A-8/74LS244 O:17E4/31F-15/AM29841 I:19C6/26B-7/27256 I:19C4/23B-7/27256 I:22B7/19C-17/IDT6168A_20 I:22B6/18C-17/IDT6168A_20 I:22B4/17C-17/IDT6168A_20 I:22B2/16C-17/IDT6168A_20 I:22C6/22C-17/IDT6168A_20 I:22C7/23C-17/IDT6168A_20 I:22C4/21C-17/IDT6168A_20 I:22C2/20C-17/IDT6168A_20 I:22D6/26C-17/IDT6168A_20 I:22D7/27C-17/IDT6168A_20 I:22D4/25C-17/IDT6168A_20 I:22D2/24C-17/IDT6168A_20 I:22F6/30C-17/IDT6168A_20 I:22F7/31C-17/IDT6168A_20
LUA10	20	I:22F4/29C-17/IDT6168A_20 I:22F2/28C-17/IDT6168A_20 I:3A2/23A-6/74LS244 T:17E2/30H-6/74F373 I:19C6/26B-2/27256 I:19C4/23B-2/27256 I:22B7/19C-7/IDT6168A_20 I:22B6/18C-7/IDT6168A_20 I:22B4/17C-7/IDT6168A_20 I:22B2/16C-7/IDT6168A_20 I:22C6/22C-7/IDT6168A_20 I:22C7/23C-7/IDT6168A_20 I:22C4/21C-7/IDT6168A_20 I:22C2/20C-7/IDT6168A_20 I:22D6/26C-7/IDT6168A_20 I:22D7/27C-7/IDT6168A_20 I:22D4/25C-7/IDT6168A_20 I:22D2/24C-7/IDT6168A_20 I:22F6/30C-7/IDT6168A_20 I:22F7/31C-7/IDT6168A_20 I:22F4/29C-7/IDT6168A_20 I:22F2/28C-7/IDT6168A_20 I:3A2/23A-4/74LS244 T:17E2/30H-5/74F373 I:19C6/26B-26/27256 I:19C4/23B-26/27256 I:22B7/19C-8/IDT6168A_20 I:22B6/18C-8/IDT6168A_20 I:22B4/17C-8/IDT6168A_20 I:22B2/16C-8/IDT6168A_20 I:22C6/22C-8/IDT6168A_20 I:22C7/23C-8/IDT6168A_20 I:22C4/21C-8/IDT6168A_20 I:22C2/20C-8/IDT6168A_20 I:22D6/26C-8/IDT6168A_20 I:22D7/27C-8/IDT6168A_20 I:22D4/25C-8/IDT6168A_20 I:22D2/24C-8/IDT6168A_20 I:22F6/30C-8/IDT6168A_20 I:22F7/31C-8/IDT6168A_20 I:22F4/29C-8/IDT6168A_20 I:22F2/28C-8/IDT6168A_20 I:3A2/23A-2/74LS244 T:17D6/11F-13/74S37 I:17D6/11F-12/74S37 T:17E2/30H-2/74F373 I:17E7/31G-1/AM29841 B:18B2/15F-13/PAL16L8D I:19C6/26B-27/27256 I:19C4/23B-27/27256 I:36B5/14D-8/PAL16R4D I:3A3/22A-6/74LS244 O:17E4/31F-16/AM29841 I:19C6/26B-6/27256 I:19C4/23B-6/27256 I:22B7/19C-18/IDT6168A_20 I:22B6/18C-18/IDT6168A_20 I:22B4/17C-18/IDT6168A_20 I:22B2/16C-18/IDT6168A_20 I:22C6/22C-18/IDT6168A_20 I:22C7/23C-18/IDT6168A_20 I:22C4/21C-18/IDT6168A_20 I:22C2/20C-18/IDT6168A_20 I:22D6/26C-18/IDT6168A_20 I:22D7/27C-18/IDT6168A_20 I:22D4/25C-18/IDT6168A_20 I:22D2/24C-18/IDT6168A_20 I:22F6/30C-18/IDT6168A_20 I:22F7/31C-18/IDT6168A_20 I:22F4/29C-18/IDT6168A_20 I:22F2/28C-18/IDT6168A_20 I:3A3/22A-4/74LS244 O:17E4/31F-17/AM29841 I:19C6/26B-5/27256 I:19C4/23B-5/27256 I:22B7/19C-19/IDT6168A_20 I:22B6/18C-19/IDT6168A_20 I:22B4/17C-19/IDT6168A_20 I:22B2/16C-19/IDT6168A_20 I:22C6/22C-19/IDT6168A_20 I:22C7/23C-19/IDT6168A_20 I:22C4/21C-19/IDT6168A_20 I:22C2/20C-19/IDT6168A_20 I:22D6/26C-19/IDT6168A_20 I:22D7/27C-19/IDT6168A_20 I:22D4/25C-19/IDT6168A_20 I:22D2/24C-19/IDT6168A_20 I:22F6/30C-19/IDT6168A_20 I:22F7/31C-19/IDT6168A_20 I:22F4/29C-19/IDT6168A_20 I:22F2/28C-19/IDT6168A_20 I:3A3/22A-2/74LS244 O:17E4/31F-18/AM29841 I:19C6/26B-4/27256 I:19C4/23B-4/27256 I:22B7/19C-1/IDT6168A_20 I:22B6/18C-1/IDT6168A_20 I:22B4/17C-1/IDT6168A_20 I:22B2/16C-1/IDT6168A_20 I:22C6/22C-1/IDT6168A_20 I:22C7/23C-1/IDT6168A_20 I:22C4/21C-1/IDT6168A_20 I:22C2/20C-1/IDT6168A_20 I:22D6/26C-1/IDT6168A_20 I:22D7/27C-1/IDT6168A_20 I:22D4/25C-1/IDT6168A_20 I:22D2/24C-1/IDT6168A_20 I:22F6/30C-1/IDT6168A_20 I:22F7/31C-1/IDT6168A_20 I:22F4/29C-1/IDT6168A_20 I:22F2/28C-1/IDT6168A_20 I:3A2/23A-17/74LS244 O:17E4/31F-19/AM29841 I:19C6/26B-3/27256 I:19C4/23B-3/27256 I:22B7/19C-2/IDT6168A_20 I:22B6/18C-2/IDT6168A_20 I:22B4/17C-2/IDT6168A_20 I:22B2/16C-2/IDT6168A_20 I:22C6/22C-2/IDT6168A_20 I:22C7/23C-2/IDT6168A_20 I:22C4/21C-2/IDT6168A_20 I:22C2/20C-2/IDT6168A_20 I:22D6/26C-2/IDT6168A_20 I:22D7/27C-2/IDT6168A_20 I:22D4/25C-2/IDT6168A_20 I:22D2/24C-2/IDT6168A_20 I:22F6/30C-2/IDT6168A_20 I:22F7/31C-2/IDT6168A_20 I:22F4/29C-2/IDT6168A_20 I:22F2/28C-2/IDT6168A_20 I:3A2/23A-15/74LS244 O:17E4/31F-20/AM29841 I:19C6/26B-25/27256 I:19C4/23B-25/27256 I:22B7/19C-3/IDT6168A_20
LUA11	20	I:22F4/29C-17/IDT6168A_20 I:22F2/28C-17/IDT6168A_20 I:3A2/23A-6/74LS244 T:17E2/30H-6/74F373 I:19C6/26B-2/27256 I:19C4/23B-2/27256 I:22B7/19C-7/IDT6168A_20 I:22B6/18C-7/IDT6168A_20 I:22B4/17C-7/IDT6168A_20 I:22B2/16C-7/IDT6168A_20 I:22C6/22C-7/IDT6168A_20 I:22C7/23C-7/IDT6168A_20 I:22C4/21C-7/ID

		I:22B6/18C-3/IDT6168A_20	I:22B4/17C-3/IDT6168A_20	I:22B2/16C-3/IDT6168A_20
		I:22C6/22C-3/IDT6168A_20	I:22C7/23C-3/IDT6168A_20	I:22C4/21C-3/IDT6168A_20
+				
+		I:22C2/20C-3/IDT6168A_20	I:22D6/26C-3/IDT6168A_20	I:22D7/27C-3/IDT6168A_20
+		I:22D4/25C-3/IDT6168A_20	I:22D2/24C-3/IDT6168A_20	I:22F6/30C-3/IDT6168A_20
	LUA7	20	I:22F7/31C-3/IDT6168A_20	I:22F4/29C-3/IDT6168A_20
			I:22F2/28C-3/IDT6168A_20	I:3A2/23A-13/74LS244
			O:17E4/31F-21/AM29841	I:19C6/26B-24/27256
			I:19C4/23B-24/27256	I:22B7/19C-4/IDT6168A_20
			I:22B6/18C-4/IDT6168A_20	I:22B4/17C-4/IDT6168A_20
			I:22B2/16C-4/IDT6168A_20	
+			I:22C6/22C-4/IDT6168A_20	I:22C7/23C-4/IDT6168A_20
+			I:22C4/21C-4/IDT6168A_20	
+			I:22C2/20C-4/IDT6168A_20	I:22D6/26C-4/IDT6168A_20
+			I:22D7/27C-4/IDT6168A_20	
+			I:22D4/25C-4/IDT6168A_20	I:22D2/24C-4/IDT6168A_20
+			I:22F6/30C-4/IDT6168A_20	
	LUA8	20	I:22F7/31C-4/IDT6168A_20	I:22F4/29C-4/IDT6168A_20
			I:22F2/28C-4/IDT6168A_20	I:3A2/23A-11/74LS244
			O:17E4/31F-22/AM29841	I:19C6/26B-21/27256
			I:19C4/23B-21/27256	I:22B7/19C-5/IDT6168A_20
			I:22B6/18C-5/IDT6168A_20	I:22B4/17C-5/IDT6168A_20
			I:22B2/16C-5/IDT6168A_20	
+			I:22C6/22C-5/IDT6168A_20	I:22C7/23C-5/IDT6168A_20
+			I:22C4/21C-5/IDT6168A_20	
+			I:22C2/20C-5/IDT6168A_20	I:22D6/26C-5/IDT6168A_20
+			I:22D7/27C-5/IDT6168A_20	
+			I:22D4/25C-5/IDT6168A_20	I:22D2/24C-5/IDT6168A_20
+			I:22F6/30C-5/IDT6168A_20	
	LUA9	20	I:22F7/31C-5/IDT6168A_20	I:22F4/29C-5/IDT6168A_20
			I:22F2/28C-5/IDT6168A_20	I:3A2/23A-8/74LS244
			O:17E4/31F-23/AM29841	I:19C6/26B-23/27256
			I:19C4/23B-23/27256	I:22B7/19C-6/IDT6168A_20
			I:22B6/18C-6/IDT6168A_20	I:22B4/17C-6/IDT6168A_20
			I:22B2/16C-6/IDT6168A_20	
+			I:22C6/22C-6/IDT6168A_20	I:22C7/23C-6/IDT6168A_20
+			I:22C4/21C-6/IDT6168A_20	
+			I:22C2/20C-6/IDT6168A_20	I:22D6/26C-6/IDT6168A_20
+			I:22D7/27C-6/IDT6168A_20	
+			I:22D4/25C-6/IDT6168A_20	I:22D2/24C-6/IDT6168A_20
+			I:22F6/30C-6/IDT6168A_20	
	MACLK	4	I:22F7/31C-6/IDT6168A_20	I:22F4/29C-6/IDT6168A_20
			I:22F2/28C-6/IDT6168A_20	I:17E4/31F-13/AM29841
			I:17E5/32G-13/AM29841	I:17E2/30H-11/74F373
			O:36F4/14C-11/74F00	I:33B7/28F-S5/ND_DELILAH
	MAP	3	B:36E5/13D-13/PAL16L8D	I:36B5/14D-9/PAL16R4D
			I:4F6/35A-1/7406	O:39C7/34D-F12/ND_DELDGA
	MCL	2	I:32D3/25F-13/AM29C821	I:33B7/28F-S10/ND_DELILAH
	MCLK	3	O:36F3/14C-8/74F00	
	MDLY	#36	1	T:36B5/14D-16/PAL16R4D
	MEM	3	T:6D2/10D-16/PAL16R8D	I:7D2/3A-13/74F241
			I:7D5/8G-5/74F00	
	MISO	6	T:3A7/21A-16/74LS374	I:3C6/B-A14
			I:7D2/3A-2/74F241	I:7C1/1F-5/74F04
			I:12E4/2C-5/PAL16L8D	I:42B3/32H-12/SC2661
	MIS1	3	T:3A7/21A-15/74LS374	I:3C6/B-C14
			I:42B3/32H-10/SC2661	
	MOFF	#45	5	I:45C6/6G-3/PAL16R4D
			I:45C4/9G-4/PAL16R4D	I:45E2/7G-4/PAL16R8B
			B:45A5/SW2-3/SECNE090320102	B:45A5/RN18-8/4610X_101_102
	MOR25	2	I:6D6/8D-6/PAL16L8B	O:48C7/14F-16/AM29C821
	MOR	5	I:3A4/16A-13/74LS244	T:7D2/3A-7/74F241
			O:7E1/RN13-7/4610X_101_102	I:33B7/28F-Q11/ND_DELILAH
			I:48C7/14F-9/AM29C821	
+	MREQ	2	I:36B6/32C-1/74F32	O:39C7/34D-N7/ND_DELDGA
	MR	13	I:6D2/10D-4/PAL16R8D	I:6D6/8D-8/PAL16L8B
			O:8E3/4D-23/AM29C821	I:33B7/28F-F3/ND_DELILAH
			I:36B5/14D-7/PAL16R4D	I:36C6/14G-4/74F08
			B:46C5/2F-13/PAL16L8B	I:46D5/14G-12/74F08
			I:46D7/14G-10/74F08	I:47D7/4F-11/PAL16L8B
			I:48E4/3F-11/PAL16L8D	I:50B6/5F-4/PAL16R8D
			I:50E6/6F-6/PAL16R8D	B:45C4/9G-19/PAL16R4D
	MSIZE0	#45	2	I:45E2/7G-2/PAL16R8B
	MSIZE1	#45	2	B:45C6/6G-13/PAL16R4D
	MWRITE50	8	I:45E2/7G-3/PAL16R8B	B:48E4/3F-13/PAL16L8D
			O:48C7/14F-21/AM29C821	I:49C3/15H-21/SIP1M9
			I:49C5/15J-21/SIP1M9	I:49E3/15K-21/SIP1M9
			I:49E5/15L-21/SIP1M9	I:49G5/15N-21/SIP1M9
			I:49G3/15M-21/SIP1M9	I:12D6/1C-4/PAL16L8D
	MWRITE	6	T:45C6/6G-14/PAL16R4D	T:45C4/9G-14/PAL16R4D
			O:45E3/RN18-5/4610X_101_102	I:46C5/2F-1/PAL16L8B
			I:48C7/14F-3/AM29C821	T:36B3/15D-17/PAL16R4D
	NOWRIT	#36	1	T:25F5/18F-16/PAL16R4D
	NUBD	#25	2	I:25G3/21F-9/AM9150_20
	NUBI	#25	2	T:25F5/18F-17/PAL16R4D
			I:25G3/21F-8/AM9150_20	I:2H4/A-A9
	O1P	4	B:42F3/D4-2/1N4148	B:42F3/R6-7/1KOHM
			B:42F2/R5-1/1KOHM	
	O2N	6	I:2H5/A-A10	I:2H5/A-C7
			O:42E4/35G-7/75150P	O:42E4/35G-6/75150P
			B:42F3/R7-2/220OHM	B:42F4/C8-1/1000pF
	OCO	5	B:2D2/RN1-3/4610X_101_102	O:2D3/A-C6

OC1 4 I:38B1/10F-13/74F10 I:38B2/7F-9/74F14 B:38A1 STR19-2 STR2
B:2D2/RN1-4/4610X 101 102! O:2D3/A-A6!!
OER~ #46 3 I:38B1/10F-2/74F10 I:38B2/12F-1/74S132
O:46C5/2F-12/PAL16L8B! I:46D2/1H-1/AM29833
OET~ #46 3 I:46D4/2H-1/AM29833
B:46C5/2F-18/PAL16L8B! I:46D2/1H-14/AM29833
I:46D4/2H-14/AM29833
OPCLCS 2 T:34D4/22F-15/PAL16R4D! I:38C4/29H-13/74F32
OSC 10 I:6D2/10D-1/PAL16R8D I:6D4/5D-1/PAL16R4D
I:8C3/3D-13/AM29C821 I:8E3/4D-13/AM29C621 I:36D4/12D-1/PAL16R6D
O:38C1/11F-3/74S37! I:48C4/13F-13/AM29C821 I:48C7/14F-13/AM29C821
I:50B6/5F-1/PAL16R8D I:50E6/6F-1/PAL16R8D
OSCC~ 3 B:2D2/RN1-2/4610X 101 102! O:2D2/A-B3!!
I:38B3/12F-9/74S132
OUBD #25 2 B:25F5/18F-13/PAL16R4D! O:25G3/21F-11/AM9150 20
OUBI #25 2 B:25F5/18F-12/PAL16R4D! O:25G3/21F-10/AM9150 20
OUTGRANT~ 2 I:4F5/C-C23! O:7E3/2B-8/74F00!
OUTIDENT~ 3 I:4F5/C-C22! O:7E1/RN3-10/4610X 101 102!
T:7D2/3A-18/74F241!
PA0 4 T:39C7/34D-L13/ND DELDGA! O:40C4/34A-7/MN58274!
I:40G4/32B-3/74LS374 B:40D7/35C-33/MC68705U3
PA1 4 T:39C7/34D-L12/ND DELDGA! O:40C4/34A-6/MN58274!
I:40G4/32B-4/74LS374 B:40D7/35C-34/MC68705U3
PA2 4 T:39C7/34D-K11/ND DELDGA! O:40C4/34A-5/MN58274!
I:40G4/32B-7/74LS374 B:40D7/35C-35/MC68705U3
PA3 4 T:39C7/34D-M13/ND DELDGA! O:40C4/34A-4/MN58274!
I:40G4/32B-8/74LS374 B:40D7/35C-36/MC68705U3
PA4 4 T:39C7/34D-L10/ND DELDGA! I:40C4/34A-12/MN58274
I:40G4/32B-13/74LS374 B:40D7/35C-37/MC68705U3
PA5 4 T:39C7/34D-N12/ND DELDGA! I:40C4/34A-11/MN58274
I:40G4/32B-14/74LS374 B:40D7/35C-38/MC68705U3
PA6 4 T:39C7/34D-N11/ND DELDGA! I:40C4/34A-10/MN58274
I:40G4/32B-17/74LS374 B:40D7/35C-39/MC68705U3
PA7 4 T:39C7/34D-M10/ND DELDGA! I:40C4/34A-9/MN58274
I:40G4/32B-18/74LS374 B:40D7/35C-40/MC68705U3
PANOSC 2 O:39C7/34D-E11/ND DELDGA! I:40D7/35C-8/MC68705U3
PAN~ 2 I:33B7/28F-R9/ND DELILAH O:39C7/34D-F13/ND DELDGA!
PARERR~ 2 B:6D6/8D-17/PAL16L8B! I:33B7/28F-S14/ND DELILAH
PA~ 4 I:6C7/12C-4/74F32 O:39C7/34D-A4/ND DELDGA!
I:46D7/14G-9/74F08 I:47D7/4F-6/PAL16L8B
PCRO 2 O:33B7/28F-Q15/ND DELILAH! I:40D7/35C-24/MC68705U3
PCR1 2 O:33B7/28F-Q17/ND DELILAH! I:40D7/35C-23/MC68705U3
PD1 16 O:2B6/13B-2/74F04! I:4C6/5C-1/74F244 I:4C6/5C-19/74F244
I:4E3/33C-1/74F244 I:4E3/33C-19/74F244 I:6D4/5D-11/PAL16R4D
I:8E3/4D-1/AM29C821 I:12E4/2C-8/PAL16L8D I:17E4/31F-1/AM29841
I:17E2/30H-1/74F373 I:32D3/25F-1/AM29C821 I:34D3/19F-11/PAL16R4D
I:34D4/22F-11/PAL16R4D I:36B5/14D-11/PAL16R4D I:36R3/15D-11/PAL16R4D
I:50B6/5F-11/PAL16R8D
PD2 3 O:2B6/13B-4/74F04! I:25F5/18F-11/PAL16R4D
I:26D4/27H-1/74PCT244
PD3 7 O:2B7/13B-6/74F04! I:6D2/10D-11/PAL16R8D
B:6D6/8D-14/PAL16L8B! I:8C3/3D-1/AM29C821 B:12D2/11H-15/PAL16L8D!
I:12D6/1C-9/PAL16L8D I:50E6/6F-11/PAL16R8D
PD4 7 O:2B7/13B-8/74F04! I:36D4/12D-11/PAL16R6D
I:44D4/5H-13/AM29861A I:45E2/7C-11/PAL16R8B I:47D7/4F-7/PAL16L8B
I:48C4/13F-1/AM29C821 I:48C7/14F-1/AM29C821
PILO 3 I:3A4/16A-2/74LS244 O:33B7/28F-A8/ND DELILAH!
I:34D6/26H-2/PAL16L8B
PIL1 3 I:3A3/22A-17/74LS244 O:33B7/28F-D9/ND DELILAH!
I:34D6/26H-3/PAL16L8B
PIL2 3 I:3A3/22A-15/74LS244 O:33B7/28F-B8/ND DELILAH!
I:34D6/26H-4/PAL16L8B
PIL3 3 I:3A3/22A-13/74LS244 O:33B7/28F-C9/ND DELILAH!
I:34D6/26H-5/PAL16L8B
PONI 4 O:33B7/28F-C8/ND DELILAH! O:39A4/RN17-3 4610X 101 103!
I:39C7/34D-E2/ND DELDGA I:40D7/35C-22/MC68705U3
POWFAIL~ 2 I:33B7/28F-P11/ND DELILAH O:39C7/34D-E12/ND DELDGA!
POWSENSE~ 2 O:38C6/7F-10/74F14! I:39C7/34D-A10/ND DELDGA
POWSENSE~ 5 B:4D4/C1-1/10nF! O:4C4/C-A29!! O:4C4/C-B29!!
O:4C4/C-C29!! I:38C6/7F-11/74F14
PPN10 7 I:14D5/4B-14/74PCT374 O:23D5/23H-3/74PCT244!
I:27D6/19G-17/74FCT521A B:28E5/9B-9/74PCT245! I:29F4/20G-7/IMS1403_25
B:29B6/23G-17/TMM2018D 25! I:31D5/10G-17/74PCT244
PPN11 7 I:14D5/4B-13/74PCT374 O:23D5/23H-5/74PCT244!
I:27D6/19G-15/74FCT521A B:28E5/9B-8/74PCT245! I:29F4/20G-6/IMS1403_25
B:29B6/23G-16/TMM2018D 25! I:31D5/10G-15/74PCT244
PPN12 7 I:14D5/4B-8/74PCT374 O:23D5/23H-7/74PCT244!
I:27D6/19G-13/74FCT521A B:28E5/9B-7/74PCT245! I:29F4/20G-5/IMS1403_25
B:29B6/23G-15/TMM2018D 25! I:31D5/10G-13/74PCT244
PPN13 7 I:14D5/4B-7/74PCT374 O:23D5/23H-9/74PCT244!
I:27D6/19G-11/74FCT521A B:28E5/9B-6/74PCT245! I:29F4/20G-4/IMS1403_25
B:29B6/23G-14/TMM2018D 25! I:31D5/10G-11/74PCT244
PPN14 7 I:14D5/4B-4/74PCT374 O:23D5/23H-12/74PCT244!
I:27D6/19G-8/74FCT521A B:28E5/9B-5/74PCT245! I:29F4/20G-3/IMS1403_25

PPN15	7	B:29B6/23G-13/TMM2018D_25! I:31D5/10G-8/74PCT244 I:14D5/4B-3/74PCT374 O:23D5/23H-14/74PCT244! I:27D6/19G-6/74FCT521A B:28E5/9B-4/74PCT245! I:29F4/20G-19/IMS1403_25 B:29B6/23G-11/TMM2018D_25! I:31D5/10G-6/74PCT244
PPN16	7	I:14D3/3B-18/74PCT374 O:23D5/23H-16/74PCT244! I:27D6/19G-4/74FCT521A B:28E5/9B-3/74PCT245! I:29F4/20G-2/IMS1403_25 B:29B6/23G-10/TMM2018D_25! I:31D5/10G-4/74PCT244
PPN17	7	I:14D3/3B-17/74PCT374 O:23D5/23H-18/74PCT244! I:27D6/19G-2/74FCT521A B:28E5/9B-2/74PCT245! I:29F4/20G-1/IMS1403_25 B:29B6/23G-9/TMM2018D_25! I:31D5/10G-2/74PCT244
PPN18	8	I:14D3/3B-14/74PCT374 O:23D3/15G-3/74PCT244! I:27D3/18G-17/74FCT521A B:28E3/10B-9/74PCT245! O:28B7/8B-3/74LS244! B:29B3/22G-17/TMM2018D_25! I:29F4/20G-18/IMS1403_25 I:31D3/11G-17/74PCT244
PPN19	9	I:14D3/3B-13/74PCT374 O:23D3/15G-5/74PCT244! I:27D3/18G-15/74FCT521A B:28E3/10B-8/74PCT245! O:28B7/8B-5/74LS244! B:29B3/22G-16/TMM2018D_25! I:29F4/20G-17/IMS1403_25 I:31D3/11G-15/74PCT244
PPN20	9	I:45C4/9G-5/PAL16R4D I:14D3/3B-8/74PCT374 O:23D3/15G-7/74PCT244! I:27D3/18G-13/74FCT521A B:28E3/10B-7/74PCT245! O:28B7/8B-7/74LS244! B:29B3/22G-15/TMM2018D_25! I:29F4/20G-16/IMS1403_25 I:31D3/11G-13/74PCT244
PPN21	9	I:45C4/9G-6/PAL16R4D I:14D3/3B-7/74PCT374 O:23D3/15G-9/74PCT244! I:27D3/18G-11/74FCT521A B:28E3/10B-6/74PCT245! O:28B7/8B-9/74LS244! B:29B3/22G-14/TMM2018D_25! I:29F4/20G-15/IMS1403_25 I:31D3/11G-11/74PCT244
PPN22	9	I:45C4/9G-7/PAL16R4D I:14D3/3B-4/74PCT374 O:23D3/15G-12/74PCT244! I:27D3/18G-8/74FCT521A B:28E3/10B-5/74PCT245! O:28B7/8B-12/74LS244! B:29B3/22G-13/TMM2018D_25! I:29F4/20G-13/IMS1403_25 I:31D3/11G-8/74PCT244
PPN23	9	I:45C4/9G-8/PAL16R4D I:14D3/3B-3/74PCT374 O:23D3/15G-14/74PCT244! I:27D3/18G-6/74FCT521A B:28E3/10B-4/74PCT245! O:28B7/8B-14/74LS244! B:29B3/22G-11/TMM2018D_25! I:29F4/20G-14/IMS1403_25 I:31D3/11G-6/74PCT244
PPN24	3	I:45C4/9G-9/PAL16R4D B:28E3/10B-3/74PCT245! O:28B7/8B-16/74LS244! B:29B3/22G-10/TMM2018D_25!
PPN25	4	B:28E3/10B-2/74PCT245! O:28B7/8B-18/74LS244! B:29B3/22G-9/TMM2018D_25! I:29F4/20G-12/IMS1403_25
PPOSC	2	O:38D1/13C-5/74LS393! I:42B3/32H-20 SC2661
PRES	#40 2	I:40G6/33B-17/74LS244 O:40F7/13G-4/74F04!
PS	3	I:6C7/12C-1/74F32 O:39C7/34D-A7/ND DELDGA! I:47D7/4F-4/PAL16L8B
PT0	2	B:29D6/25G-17/TMM2018D_25! B:30D5/18B-11/74PCT245!
PT1	2	B:29D6/25G-16/TMM2018D_25! B:30D5/18B-12/74PCT245!
PT10	3	B:29D3/24G-15/TMM2018D_25! B:30D3/17B-13/74PCT245! I:33B7/28F-Q7/ND DELILAH
PT11	3	B:29D3/24G-14/TMM2018D_25! B:30D3/17B-14/74PCT245! I:33B7/28F-R8/ND DELILAH
PT12	3	B:29D3/24G-13/TMM2018D_25! B:30D3/17B-15/74PCT245! I:33B7/28F-R7/ND DELILAH
PT13	3	B:29D3/24G-11/TMM2018D_25! B:30D3/17B-16/74PCT245! I:33B7/28F-S8/ND DELILAH
PT14	3	B:29D3/24G-10/TMM2018D_25! B:30D3/17B-17/74PCT245! I:33B7/28F-P8/ND DELILAH
PT15	3	B:29D3/24G-9/TMM2018D_25! B:30D3/17B-18/74PCT245! I:33B7/28F-S9/ND DELILAH
PT2	2	B:29D6/25G-15/TMM2018D_25! B:30D5/18B-13/74PCT245!
PT3	2	B:29D6/25G-14/TMM2018D_25! B:30D5/18B-14/74PCT245!
PT4	2	B:29D6/25G-13/TMM2018D_25! B:30D5/18B-15/74PCT245!
PT5	2	B:29D6/25G-11/TMM2018D_25! B:30D5/18B-16/74PCT245!
PT6	2	B:29D6/25G-10/TMM2018D_25! B:30D5/18B-17/74PCT245!
PT7	2	B:29D6/25G-9/TMM2018D_25! B:30D5/18B-18/74PCT245!
PT8	2	B:29D3/24G-17/TMM2018D_25! B:30D3/17B-11/74PCT245!
PT9	3	B:29D3/24G-16/TMM2018D_25! B:30D3/17B-12/74PCT245! I:33B7/28F-S7/ND DELILAH
PWCL	2	O:38C4/29H-11/74F32! I:39C7/34D-A11/ND DELDGA
QA	#50 1	T:50E6/6F-19/PAL16R8D!
QB	#50 1	T:50E6/6F-18/PAL16R8D!
QC	#50 1	T:50E6/6F-17/PAL16R8D!
QD	#50 1	T:50E6/6F-16/PAL16R8D!
Q0	2	T:6D4/5D-17/PAL16R4D! I:12D2/11D-1/PAL16L8D
Q1	#6 1	T:6D4/5D-16/PAL16R4D!
Q2	2	T:6D4/5D-15/PAL16R4D! I:12D2/11D-2/PAL16L8D
RAS	4	I:49B6/9H-1/74F00 I:49D6/9H-9/74F00 I:49F6/8G-9/74F00 T:50E6/6F-15/PAL16R8D!
RAS0	#49 3	O:49B6/9H-3/74F00! I:49C3/15H-27/SIP1M9 I:49C5/15J-27/SIP1M9
RAS1</		

RDATA	4	I:46D2/1H-13/AM29833 I:46D4/2H-13/AM29833
READ	#40 2	I:47D7/4F-1/PAL16L8B O:48E4/3F-12/PAL16L8D
REF100	#48 2	I:40G6/33B-13/74LS244 B:40D7/35C-31/MC68705U3
REFRQ25	#8 2	B:48E4/3F-15/PAL16L8D O:48C7/14F-17/AM29C821
REFRQ50	2	O:8C3/3D-22/AM29C821 I:8E3/4D-3/AM29C821
REFRQ	3	I:6D2/10D-6/PAL16R8D O:8E3/4D-22/AM29C821
		I:8C3/3D-3/AM29C821 O:39C7/34D-C13/ND_DELDGA
		I:45C2/2D-11/74F74
REF	4	T:6D2/10D-15/PAL16R8D I:7D6/7A-9/7407
		I:39C7/34D-C9/ND_DELDGA I:48C7/14F-5/AM29C821
RERR	4	B:6D6/8D-16/PAL16L8B I:6C7/12C-2/74F32
		I:6C7/12C-5/74F32 I:47D7/4F-5/PAL16L8B
RESET	#41 1	O:41E4/28A-2/74LS273
RESTART	2	B:4D1/RN3-3/4610X 101 102 O:4C2/C-B13
RFO	7	I:18D2/30B-2/74F139 I:18D2/30B-14/74F139
		I:19C6/26B-10/27256 I:19C4/23B-10/27256 I:32F5/34F-23/TMM2018D_25
		I:32F7/35F-23/TMM2018D_25 O:33B7/28F-K5/ND_DELI1AH
RF1	7	I:18D2/30B-3/74F139 I:18D2/30B-13/74F139
		I:19C6/26B-9/27256 I:19C4/23B-9/27256 I:32F5/34F-22/TMM2018D_25
		I:32F7/35F-22/TMM2018D_25 O:33B7/28F-N2/ND_DELI1AH
RGNT	4	I:45C2/2D-13/74F74 B:48E4/3F-16/PAL16L8D
		T:50B6/5F-19/PAL16R8D I:50E6/6F-2/PAL16R8D
RINR	3	O:39C7/34D-B5/ND_DELDGA I:41C7/24A-1/74PCT244
		I:41C7/24A-19/74PCT244
RLRQ	2	O:45C2/2D-8/74F74 I:50B6/5F-3/PAL16R8D
RMM	3	O:39A1/RN15-4/4610X 101 103 I:39C7/34D-L9/ND_DELDGA
		B:40D7/35C-28/MC68705U3
ROCLK	#40 2	I:40C4/34A-2/MN58274 B:40D7/35C-27/MC68705U3
RRF	#34 1	T:34D3/19F-17/PAL16R4D
RTOSC	2	O:38E2/13C-8/74LS393 I:39C7/34D-C8/ND_DELDGA
RT	5	B:12D2/11D-13/PAL16L8D I:24A2/21G-4/PAL16L8D
		I:25F5/18F-3/PAL16R4D I:36B6/32C-5/74F32 O:39C7/34D-J2/ND_DELDGA
RUART	2	O:39C7/34D-B8/ND_DELDGA I:42B3/32H-13/SC2661
RUN	3	I:2H3/A-C18 O:4F7/7A-2/7407 I:4F7/C-B14
RWCS	3	I:18B2/15F-6/PAL16L8D T:34D4/22F-14/PAL16R4D
		I:36E5/13D-8/PAL16L8D
RXD	2	O:2D3/A-C8 I:42E6/R3-2/2.2KOHM
SAPR	#12 1	B:12D6/1C-15/PAL16L8D
SCONS	#41 3	O:41E4/28A-5/74LS273 I:41F4/29A-4/74F08
		I:41G3/11B-3/74LS04
SELSMS	3	O:3A7/B-B14 O:3A7/R4-2/1KOHM I:39C7/34D-B9/ND_DELDGA
SEMRQ25	#8 2	O:8C3/3D-21/AM29C821 I:8E3/4D-4/AM29C821
SEMRQ50	3	I:6D2/10D-8/PAL16R8D O:8E3/4D-21/AM29C821
		I:50B6/5F-8/PAL16R8D
SEMRQ	3	I:4C6/5C-4/74F244 B:4A5/C-A17 O:7E7/2A-8/7438
SEM	2	T:6D2/10D-19/PAL16R8D I:7E3/2B-5/74F00
SHORT	2	B:36D4/12D-12/PAL16R6D O:39C7/34D-H3/ND_DELDGA
STOC	2	O:39C7/34D-K2/ND_DELDGA I:41E4/28A-11/74LS273
SLOW	2	B:36D4/12D-19/PAL16R6D O:39C7/34D-H2/ND_DELDGA
SO	#42 4	O:42B3/32H-19/SC2661 I:42E4/35G-2/75150P
		I:42E4/35G-3/75150P I:42E4/35G-1/75150P
SPEA	4	O:6D6/8D-19/PAL16L8B I:13C5/10A-11/74ALS534
		I:13E5/8A-11/74ALS534 I:13E3/9A-11/74ALS534
SPEAL	#47 4	O:47D7/4F-12/PAL16L8B I:47C4/3C-11/74PCT374
		I:47E2/4C-11/74PCT374 I:47E4/6D-11/74PCT374
SPES	2	O:6D6/8D-12/PAL16L8B I:13C3/12A-11/74ALS534
SPESL	#47 2	O:47D7/4F-19/PAL16L8B I:47C2/7C-11/74PCT374
SSEMA	3	I:7D7/9D-8/74F02 O:39C7/34D-N1/ND_DELDGA
		I:50B6/5F-7/PAL16R8D
STAT0	#40 2	I:40G6/33B-2/74LS244 B:40D7/35C-9/MC68705U3
STAT1	#40 2	I:40G6/33B-4/74LS244 B:40D7/35C-10/MC68705U3
STAT2	#40 2	I:40G6/33B-6/74LS244 B:40D7/35C-11/MC68705U3
STAT3	4	O:39A1/RN15-6/4610X 101 103 I:39C7/34D-D2/ND_DELDGA
		I:40G6/33B-8/74LS244 B:40D7/35C-29/MC68705U3
STAT4	3	O:39A1/RN15-5/4610X 101 103 I:39C7/34D-C1/ND_DELDGA
		B:40D7/35C-30/MC68705U3
STAT7	#40 3	B:40D7/35C-32/MC68705U3 I:40F7/13G-3/74F04
		O:40E7/RN8-10/4610X 101 103
STOC	5	I:35D3/14B-1/74PCT244 I:35D3/14B-19/74PCT244
		I:35D5/15B-1/74PCT244 I:35D5/15B-19/74PCT244 O:39C7/34D-H1/ND_DELDGA
STOP	4	B:2E2/RN1-10/4610X 101 102 O:2D4/A-C17
		I:4E3/33C-8/74F244 O:4C2/C-B16
STP	3	I:4F7/7A-1/7407 I:26D4/27H-2/74PCT244
		O:39C7/34D-E13/ND_DELDGA
SWDIS	#46 3	I:46C5/2F-2/PAL16L8B B:46A4/SW4-3/SECME_SPDT
		O:46A4/RN14-6/4610X 101 102
SWLD	2	O:2G3/R1-2/1KOHM I:2H3/A-A15
SWMCL	4	O:2D4/A-C16 I:2E2/RN1-6/4610X 101 102
		B:2E6/SW3-1/SECME436231205 I:38B4/12F-13/74S132
TBMT	4	I:41F5/11B-9/74LS04 O:42B3/32H-15/SC2661
		O:42B5/RN7-2/4610X 101 103 I:42C6/33G-2/AM29C821
TERM	13	I:6D4/5D-8/PAL16R4D I:12D2/11D-9/PAL16L8D
		I:18B2/15F-11/PAL16L8D I:24A3/17F-5/74F10 I:25F5/18F-5/PAL16R4D

I:32E7/17F-13/74F10 I:36E5/13D-1/PAL16L8D T:36D4/12D-17/PAL16R6D
I:36F2/14C-2/74F00 I:36F2/9D-2/74F02 I:36F5/14G-1/74F08 I:36F3/14C-4/74F00
+
I:36F4/14C-12/74F00
TEST0 #33 2 B:33E6/TP6-1/TESTPOINT! O:33B7/28F-N11/ND DELILAH!
TEST1 #33 2 B:33E5/TP5-1/TESTPOINT! O:33B7/28F-P12/ND DELILAH!
TEST2 #33 2 B:33E5/TP4-1/TESTPOINT! O:33B7/28F-Q12/ND DELILAH!
TEST3 #33 2 B:33D5/TP3-1/TESTPOINT! O:33B7/28F-R15/ND DELILAH!
TEST4 #33 2 B:33D5/TP2-1/TESTPOINT! O:33B7/28F-Q13/ND DELILAH!
TOUT 2 I:7D2/3A-19/74F241 O:39C7/34D-D12/ND DELDGA
TRAALD~ 5 O:39C7/34D-C6/ND DELDGA I:41C2/27A-1/74PCT244
I:41C2/27A-19/74PCT244 I:41C5/25A-1/74PCT244 I:41C5/25A-19/74PCT244
TRAP~ 2 O:33B7/28F-Q9/ND DELILAH I:36E5/13D-9/PAL16L8D
TST~ #46 1 B:46C5/2F-15/PAL16L8B
TWR~ #32 3 I:32F5/34F-21/TMM2018D_25 I:32F7/35F-21/TMM2018D_25
O:32E7/17F-12/74F10
UCLK 6 I:25F5/18F-1/PAL16R4D I:26C5/24H-3/74F74
I:33B7/28F-Q8/ND DELILAH O:36F5/14G-3/74F08 O:39A1/RN15-3/4610X_101_103
+
I:39C7/34D-N5/ND DELDGA
USED~ #25 2 B:25F5/18F-19/PAL16R4D I:25G6/21H-1/74S260
UUA0 18 O:17E5/32G-14/AM29841! O:17E7/31G-14/AM29841!
I:21B7/19D-16/IDT6168A_20 I:21B6/18D-16/IDT6168A_20
I:21B4/17D-16/IDT6168A_20 I:21B2/16D-16/IDT6168A_20 I:21C6/22D-16/IDT6168A_20
+
I:21C7/23D-16/IDT6168A_20 I:21C4/21D-16/IDT6168A_20
I:21C2/20D-16/IDT6168A_20 I:21D6/26D-16/IDT6168A_20 I:21D7/27D-16/IDT6168A_20
+
I:21D4/25D-16/IDT6168A_20 I:21D2/24D-16/IDT6168A_20
I:21F6/30D-16/IDT6168A_20 I:21F7/31D-16/IDT6168A_20 I:21F4/29D-16/IDT6168A_20
+
I:21F2/28D-16/IDT6168A_20
UUA1 18 O:17E5/32G-15/AM29841! O:17E7/31G-15/AM29841!
I:21B7/19D-17/IDT6168A_20 I:21B6/18D-17/IDT6168A_20
I:21B4/17D-17/IDT6168A_20 I:21B2/16D-17/IDT6168A_20 I:21C6/22D-17/IDT6168A_20
+
I:21C7/23D-17/IDT6168A_20 I:21C4/21D-17/IDT6168A_20
I:21C2/20D-17/IDT6168A_20 I:21D6/26D-17/IDT6168A_20 I:21D7/27D-17/IDT6168A_20
+
I:21D4/25D-17/IDT6168A_20 I:21D2/24D-17/IDT6168A_20
I:21F6/30D-17/IDT6168A_20 I:21F7/31D-17/IDT6168A_20 I:21F4/29D-17/IDT6168A_20
+
I:21F2/28D-17/IDT6168A_20
UUA10 17 T:17E2/30H-16/74F373! I:21B7/19D-7/IDT6168A_20
I:21B6/18D-7/IDT6168A_20 I:21B4/17D-7/IDT6168A_20 I:21B2/16D-7/IDT6168A_20
+
I:21C6/22D-7/IDT6168A_20 I:21C7/23D-7/IDT6168A_20 I:21C4/21D-7/IDT6168A_20
+
I:21C2/20D-7/IDT6168A_20 I:21D6/26D-7/IDT6168A_20 I:21D7/27D-7/IDT6168A_20
+
I:21D4/25D-7/IDT6168A_20 I:21D2/24D-7/IDT6168A_20 I:21F6/30D-7/IDT6168A_20
+
I:21F7/31D-7/IDT6168A_20 I:21F4/29D-7/IDT6168A_20 I:21F2/28D-7/IDT6168A_20
+
I:21F2/28D-7/IDT6168A_20
UUA11 17 T:17E2/30H-15/74F373! I:21B7/19D-8/IDT6168A_20
I:21B6/18D-8/IDT6168A_20 I:21B4/17D-8/IDT6168A_20 I:21B2/16D-8/IDT6168A_20
+
I:21C6/22D-8/IDT6168A_20 I:21C7/23D-8/IDT6168A_20 I:21C4/21D-8/IDT6168A_20
+
I:21C2/20D-8/IDT6168A_20 I:21D6/26D-8/IDT6168A_20 I:21D7/27D-8/IDT6168A_20
+
I:21D4/25D-8/IDT6168A_20 I:21D2/24D-8/IDT6168A_20 I:21F6/30D-8/IDT6168A_20
+
I:21F7/31D-8/IDT6168A_20 I:21F4/29D-8/IDT6168A_20 I:21F2/28D-8/IDT6168A_20
+
I:21F2/28D-8/IDT6168A_20
UUA2 18 O:17E5/32G-16/AM29841! O:17E7/31G-16/AM29841!
I:21B7/19D-18/IDT6168A_20 I:21B6/18D-18/IDT6168A_20
I:21B4/17D-18/IDT6168A_20 I:21B2/16D-18/IDT6168A_20 I:21C6/22D-18/IDT6168A_20
+
I:21C7/23D-18/IDT6168A_20 I:21C4/21D-18/IDT6168A_20
I:21C2/20D-18/IDT6168A_20 I:21D6/26D-18/IDT6168A_20 I:21D7/27D-18/IDT6168A_20
+
I:21D4/25D-18/IDT6168A_20 I:21D2/24D-18/IDT6168A_20
I:21F6/30D-18/IDT6168A_20 I:21F7/31D-18/IDT6168A_20 I:21F4/29D-18/IDT6168A_20
+
I:21F2/28D-18/IDT6168A_20
UUA3 18 O:17E5/32G-17/AM29841! O:17E7/31G-17/AM29841!
I:21B7/19D-19/IDT6168A_20 I:21B6/18D-19/IDT6168A_20
I:21B4/17D-19/IDT6168A_20 I:21B2/16D-19/IDT6168A_20 I:21C6/22D-19/IDT6168A_20
+
I:21C7/23D-19/IDT6168A_20 I:21C4/21D-19/IDT6168A_20
I:21C2/20D-19/IDT6168A_20 I:21D6/26D-19/IDT6168A_20 I:21D7/27D-19/IDT6168A_20
+
I:21D4/25D-19/IDT6168A_20 I:21D2/24D-19/IDT6168A_20

		I:21F6/30D-19/IDT6168A_20	I:21F7/31D-19/IDT6168A_20	I:21F4/29D-19/IDT6168A_20
UUA4	18	I:21F2/28D-19/IDT6168A_20	O:17E5/32G-18/AM29841!	O:17E7/31G-18/AM29841!
+		I:21B7/19D-1/IDT6168A_20	I:21B6/18D-1/IDT6168A_20	I:21B4/17D-1/IDT6168A_20
+		I:21B2/16D-1/IDT6168A_20	I:21C6/22D-1/IDT6168A_20	I:21C7/23D-1/IDT6168A_20
+		I:21C4/21D-1/IDT6168A_20	I:21C2/20D-1/IDT6168A_20	I:21D6/26D-1/IDT6168A_20
+		I:21D7/27D-1/IDT6168A_20	I:21D4/25D-1/IDT6168A_20	I:21D2/24D-1/IDT6168A_20
+		I:21F6/30D-1/IDT6168A_20	I:21F7/31D-1/IDT6168A_20	I:21F4/29D-1/IDT6168A_20
UUA5	18	I:21F2/28D-1/IDT6168A_20	O:17E5/32G-19/AM29841!	O:17E7/31G-19/AM29841!
+		I:21B7/19D-2/IDT6168A_20	I:21B6/18D-2/IDT6168A_20	I:21B4/17D-2/IDT6168A_20
+		I:21B2/16D-2/IDT6168A_20	I:21C6/22D-2/IDT6168A_20	I:21C7/23D-2/IDT6168A_20
+		I:21C4/21D-2/IDT6168A_20	I:21C2/20D-2/IDT6168A_20	I:21D6/26D-2/IDT6168A_20
+		I:21D7/27D-2/IDT6168A_20	I:21D4/25D-2/IDT6168A_20	I:21D2/24D-2/IDT6168A_20
+		I:21F6/30D-2/IDT6168A_20	I:21F7/31D-2/IDT6168A_20	I:21F4/29D-2/IDT6168A_20
UUA6	18	I:21F2/28D-2/IDT6168A_20	O:17E5/32G-20/AM29841!	O:17E7/31G-20/AM29841!
+		I:21B7/19D-3/IDT6168A_20	I:21B6/18D-3/IDT6168A_20	I:21B4/17D-3/IDT6168A_20
+		I:21B2/16D-3/IDT6168A_20	I:21C6/22D-3/IDT6168A_20	I:21C7/23D-3/IDT6168A_20
+		I:21C4/21D-3/IDT6168A_20	I:21C2/20D-3/IDT6168A_20	I:21D6/26D-3/IDT6168A_20
+		I:21D7/27D-3/IDT6168A_20	I:21D4/25D-3/IDT6168A_20	I:21D2/24D-3/IDT6168A_20
+		I:21F6/30D-3/IDT6168A_20	I:21F7/31D-3/IDT6168A_20	I:21F4/29D-3/IDT6168A_20
UUA7	18	I:21F2/28D-3/IDT6168A_20	O:17E5/32G-21/AM29841!	O:17E7/31G-21/AM29841!
+		I:21B7/19D-4/IDT6168A_20	I:21B6/18D-4/IDT6168A_20	I:21B4/17D-4/IDT6168A_20
+		I:21B2/16D-4/IDT6168A_20	I:21C6/22D-4/IDT6168A_20	I:21C7/23D-4/IDT6168A_20
+		I:21C4/21D-4/IDT6168A_20	I:21C2/20D-4/IDT6168A_20	I:21D6/26D-4/IDT6168A_20
+		I:21D7/27D-4/IDT6168A_20	I:21D4/25D-4/IDT6168A_20	I:21D2/24D-4/IDT6168A_20
+		I:21F6/30D-4/IDT6168A_20	I:21F7/31D-4/IDT6168A_20	I:21F4/29D-4/IDT6168A_20
UUA8	18	I:21F2/28D-4/IDT6168A_20	O:17E5/32G-22/AM29841!	O:17E7/31G-22/AM29841!
+		I:21B7/19D-5/IDT6168A_20	I:21B6/18D-5/IDT6168A_20	I:21B4/17D-5/IDT6168A_20
+		I:21B2/16D-5/IDT6168A_20	I:21C6/22D-5/IDT6168A_20	I:21C7/23D-5/IDT6168A_20
+		I:21C4/21D-5/IDT6168A_20	I:21C2/20D-5/IDT6168A_20	I:21D6/26D-5/IDT6168A_20
+		I:21D7/27D-5/IDT6168A_20	I:21D4/25D-5/IDT6168A_20	I:21D2/24D-5/IDT6168A_20
+		I:21F6/30D-5/IDT6168A_20	I:21F7/31D-5/IDT6168A_20	I:21F4/29D-5/IDT6168A_20
UUA9	18	I:21F2/28D-5/IDT6168A_20	O:17E5/32G-23/AM29841!	O:17E7/31G-23/AM29841!
+		I:21B7/19D-6/IDT6168A_20	I:21B6/18D-6/IDT6168A_20	I:21B4/17D-6/IDT6168A_20
+		I:21B2/16D-6/IDT6168A_20	I:21C6/22D-6/IDT6168A_20	I:21C7/23D-6/IDT6168A_20
+		I:21C4/21D-6/IDT6168A_20	I:21C2/20D-6/IDT6168A_20	I:21D6/26D-6/IDT6168A_20
+		I:21D7/27D-6/IDT6168A_20	I:21D4/25D-6/IDT6168A_20	I:21D2/24D-6/IDT6168A_20
+		I:21F6/30D-6/IDT6168A_20	I:21F7/31D-6/IDT6168A_20	I:21F4/29D-6/IDT6168A_20
VAL	2	I:21F2/28D-6/IDT6168A_20	O:39C7/34D-B4/ND DELDGA!	I:40G6/33B-11/74LS244
VCC	157	\$SOVERFLOW\$ I:3C4/RN13-1/4610X_101_102	B:3H1/B-A2!!	B:3H1/B-B2!!
		I:3C6/RN13-1/4610X_101_102	B:3H1/B-A3!!	B:3H2/B-B3!!
		I:3F5/RN13-1/4610X_101_102	B:4G3/C-A3!!	B:4G3/C-B3!!
		B:4G3/C-A3!!	B:4G3/C-B3!!	B:4G3/C-C3!!
		B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102
		B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102
		B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102	B:4D1/RN3-1/4610X_101_102
		B:4D1/RN3-1/4610X_101_102	B:4G2/C-A2!!	B:4G2/C-B2!!
		B:4D1/RN3-1/4610X_101_102	B:4G2/C-A2!!	B:4G2/C-B2!!
		I:7E1/RN3-1/4610X_101_102	I:7E1/RN13-1/4610X_101_102	

```

I:7E1/RN13-1/4610X_101_102 I:11E2/RN19-1/4610X_101_102
I:11E2/RN19-1/4610X_101_102 I:11E2/RN19-1/4610X_101_102
I:11E2/RN19-1/4610X_101_102 I:11E2/RN19-1/4610X_101_102
I:11F2/RN19-1/4610X_101_102 I:11F2/RN20-1/4610X_101_102
I:11G2/RN20-1/4610X_101_102 I:11G2/RN20-1/4610X_101_102
I:11G2/RN20-1/4610X_101_102 I:11G2/RN20-1/4610X_101_102
I:11G2/RN20-1/4610X_101_102 I:11G2/RN20-1/4610X_101_102
I:11F2/RN20-1/4610X_101_102 I:11F2/RN19-1/4610X_101_102 I:19C6/26B-1/27256
+
I:19C4/23B-1/27256 B:25F6/RN14-1/4610X_101_102 B:25F6/RN14-1/4610X_101_102
+
I:26B4/RN9-1/4610X_101_102 I:26C4/RN9-1/4610X_101_102
I:33B7/28F-B2/ND_DELILAH I:33B7/28F-R2/ND_DELILAH I:33B7/28F-K3/ND_DELILAH
+
I:33B7/28F-B1/ND_DELILAH
VEX 3 T:34D4/22F-16/PAL16R4D I:34E3/29H-10/74F32
I:36E5/13D-11/PAL16L8D
WAIT1 #36 2 I:36D4/12D-5/PAL16R6D O:36C6/14G-6/74F08
WAIT2 #36 2 J:36D4/12D-6/PAL16R6D O:36B6/25H-8/74F00
WBD 4 I:10D6/6A-3/74AS648 I:10D4/5A-3/74AS648
I:10D2/4A-3/74AS648 O:12E4/2C-19/PAL16L8D
WCA 12 B:18B2/15F-14/PAL16L8D I:24A2/21G-9/PAL16L8D
B:25F5/18F-18/PAL16R4D I:25D6/24F-21/TMM2018D_25 I:25B6/20F-21/TMM2018D_25
+
I:25B3/16F-21/TMM2018D_25 I:25G3/21F-18/AM9150_20 I:25D3/23F-21/TMM2018D_25
+
I:31D3/11G-1/74PCT244 I:31D3/11G-19/74PCT244 I:31D5/10G-1/74PCT244
I:31D5/10G-19/74PCT244
WCHIM 3 I:24A2/21G-5/PAL16L8D I:24A3/32C-9/74F32
O:39C7/34D-11/ND_DELDGA
WCINH 3 I:25E6/17F-11/74F10 I:26C5/24H-2/74F74
O:29F4/20G-8/IMS1403_25
WCLIM 2 O:24A3/32C-8/74F32 I:29F4/20G-9/IMS1403_25
WCSTB #18 2 O:18B2/15F-12/PAL16L8D I:18D2/30B-15/74F139
WCS 10 I:18B2/15F-7/PAL16L8D I:20B7/28B-1/74LS245
I:20B6/24B-1/74LS245 I:20B4/20B-1/74LS245 I:20B3/16B-1/74LS245
I:20C7/29B-1/74LS245 I:20C6/27B-1/74LS245 I:20C4/21B-1/74LS245
I:20C3/19B-1/74LS245 O:33B7/28F-P3/ND_DELILAH
WICA #18 5 O:18B2/15F-19/PAL16L8D I:18E2/29J-2/74F08
I:18E2/29J-5/74F08 I:18E3/29J-10/74F08 I:18E3/29J-13/74F08
WLBD 3 I:11D5/6B-3/74AS646 I:11D4/7B-3/74AS646
O:12E4/2C-12/PAL16L8D
WMAP 5 O:24A3/17F-6/74F10 I:29B3/22G-21/TMM2018D_25
I:29D3/24G-21/TMM2018D_25 I:29B6/23G-21/TMM2018D_25
I:29D6/25G-21/TMM2018D_25
WMM #40 2 I:40G4/32B-11/74LS244 B:40D7/35C-25/MC68705U3
WRCLK #40 2 I:40C4/34A-3/MM58274 B:40D7/35C-26/MC68705U3
WRFSTB 2 I:32E7/17F-2/74F10 B:36E5/13D-18/PAL16L8D
WRITE 7 I:12E4/2C-7/PAL16L8D I:24A2/21G-2/PAL16L8D
I:24A3/17F-4/74F10 I:30D3/17B-1/74PCT245 I:30D5/18B-1/74PCT245
O:39C7/34D-N6/ND_DELDGA I:45C4/9G-2/PAL16R4D
WRTRF 5 I:32F5/34F-20/TMM2018D_25 I:32F7/35F-20/TMM2018D_25
I:32E7/17F-1/74F10 O:33B7/28F-D5/ND_DELILAH I:34D3/19F-7/PAL16R4D
WU0 5 O:18E2/29J-3/74F08 I:21F6/30D-11/IDT6168A_20
I:21F7/31D-11/IDT6168A_20 I:21F4/29D-11/IDT6168A_20
I:21F2/28D-11/IDT6168A_20
WU1 5 O:18E2/29J-6/74F08 I:21D6/26D-11/IDT6168A_20
I:21D7/27D-11/IDT6168A_20 I:21D4/25D-11/IDT6168A_20
I:21D2/24D-11/IDT6168A_20
WU2 5 O:18E3/29J-8/74F08 I:21C6/22D-11/IDT6168A_20
I:21C7/23D-11/IDT6168A_20 I:21C4/21D-11/IDT6168A_20
I:21C2/20D-11/IDT6168A_20
WU3 5 O:18E3/29J-11/74F08 I:21B7/19D-11/IDT6168A_20
I:21B6/18D-11/IDT6168A_20 I:21B4/17D-11/IDT6168A_20
I:21B2/16D-11/IDT6168A_20
WW0 6 O:18D2/30B-12/74F139 I:18E2/29J-1/74F08
I:22F6/30C-11/IDT6168A_20 I:22F7/31C-11/IDT6168A_20
I:22F4/29C-11/IDT6168A_20 I:22F2/28C-11/IDT6168A_20
WW1 6 O:18D2/30B-11/74F139 I:18E2/29J-4/74F08
I:22D6/26C-11/IDT6168A_20 I:22D7/27C-11/IDT6168A_20
I:22D4/25C-11/IDT6168A_20 I:22D2/24C-11/IDT6168A_20
WW2 6 O:18D2/30B-10/74F139 I:18E3/29J-9/74F08
I:22C6/22C-11/IDT6168A_20 I:22C7/23C-11/IDT6168A_20
I:22C4/21C-11/IDT6168A_20 I:22C2/20C-11/IDT6168A_20
WW3 6 O:18D2/30B-9/74F139 I:18E3/29J-12/74F08
I:22B7/19C-11/IDT6168A_20 I:22B6/18C-11/IDT6168A_20
I:22B4/17C-11/IDT6168A_20 I:22B2/16C-11/IDT6168A_20
XBGNT 2 O:3A4/16A-14/74LS244 I:3B4/B-A10
XCA0 2 I:3G4/B-A26 O:3F4/15C-3/74LS244
XCA1 2 I:3G4/B-C26 O:3F4/15C-5/74LS244
XCA2 2 I:3G4/B-A25 O:3F4/15C-7/74LS244
XCA3 2 I:3G4/B-C25 O:3F4/15C-9/74LS244
XCA4 2 I:3G4/B-A24 O:3F4/15C-12/74LS244

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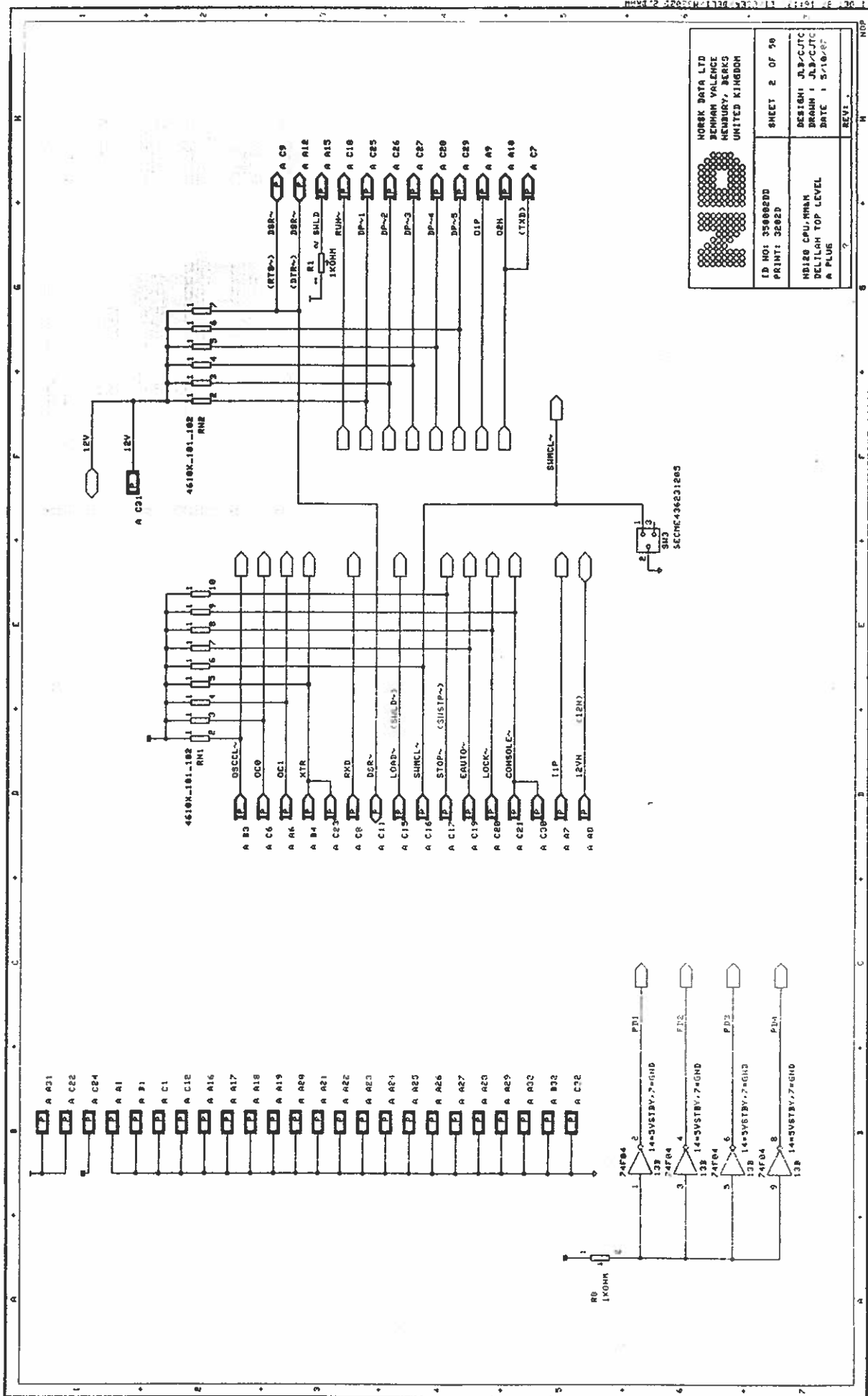
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XCA6	2	I:3G4/B-A23/ O:3F4/15C-16/74LS244!
XCA7	2	I:3G3/B-C23/ O:3F4/15C-18/74LS244!
XCA8	2	I:3G3/B-A30/ O:3F3/16G-3/74LS244!
XCA9	2	I:3G3/B-C30/ O:3F3/16G-5/74LS244!
XCGNT~	2	O:3A4/16A-12/74LS244! I:3C4/B-B16/
XCLK	2	O:3A4/16A-16/74LS244! I:3C3/B-C10/
XCOMM0	2	T:3A7/21A-12/74LS374! I:3B6/B-A13/
XCOMM1	2	T:3A7/21A-9/74LS374! I:3C6/B-C12/
XCOMM2	2	T:3A7/21A-6/74LS374! I:3B6/B-A11/
XCOMM3	2	T:3A7/21A-5/74LS374! I:3C6/B-C11/
XCOMM4	2	T:3A7/21A-2/74LS374! I:3B6/B-C13/
XIDU0	4	O:3D3/19A-3/74LS244! O:3D6/20A-3/74LS244! O:3E7/4G-3/74F244! I:3E3/B-A17/
XIDB1	4	O:3D3/19A-5/74LS244! O:3D6/20A-5/74LS244! O:3E7/4G-5/74F244! I:3E3/B-C17/
XIDB10	4	O:3D2/17A-7/74LS244! O:3D4/18A-7/74LS244! O:3D7/5G-7/74F244! I:3E1/B-A21/
XIDB11	4	O:3D2/17A-9/74LS244! O:3D4/18A-9/74LS244! O:3D7/5G-9/74F244! I:3E1/B-C21/
XIDB12	4	O:3D2/17A-12/74LS244! O:3D4/18A-12/74LS244! O:3D7/5G-12/74F244! I:3E1/B-A19/
XIDB13	4	O:3D2/17A-14/74LS244! O:3D4/18A-14/74LS244! O:3D7/5G-14/74F244! I:3E1/B-C19/
XIDB14	4	O:3D2/17A-16/74LS244! O:3D4/18A-16/74LS244! O:3D7/5G-16/74F244! I:3E1/B-A22/
XIDB15	4	O:3D2/17A-18/74LS244! O:3D4/18A-18/74LS244! O:3D7/5G-18/74F244! I:3E1/B-C22/
XIDB2	4	O:3D3/19A-7/74LS244! O:3D6/20A-7/74LS244! O:3E7/4G-7/74F244! I:3E3/B-A15/
XIDB3	4	O:3D3/19A-9/74LS244! O:3D6/20A-9/74LS244! O:3E7/4G-9/74F244! I:3E3/B-C18/
XIDB4	4	O:3D3/19A-12/74LS244! O:3D6/20A-12/74LS244! O:3E7/4G-12/74F244! I:3E2/B-C16/
XIDB5	4	O:3D3/19A-14/74LS244! O:3D6/20A-14/74LS244! O:3E7/4G-14/74F244! I:3E2/B-A16/
XIDB6	4	O:3D3/19A-16/74LS244! O:3D6/20A-16/74LS244! O:3E7/4G-16/74F244! I:3E2/B-C15/
XIDB7	4	O:3D3/19A-18/74LS244! O:3D6/20A-18/74LS244! O:3E7/4G-18/74F244! I:3E2/B-A15/
XIDB8	4	O:3D2/17A-3/74LS244! O:3D4/18A-3/74LS244! O:3D7/5G-3/74F244! I:3E2/B-C20/
XIDB9	4	O:3D2/17A-5/74LS244! O:3D4/18A-5/74LS244! O:3D7/5G-5/74F244! I:3E2/B-A20/
XLA10	2	I:3G3/B-A29/ O:3F3/16G-7/74LS244!
XLA11	2	I:3G3/B-C29/ O:3F3/16G-9/74LS244!
XLA12	2	I:3G2/B-A28/ O:3F3/16G-12/74LS244!
XLA13	2	I:3G2/B-C28/ O:3F3/16G-14/74LS244!
XLA14	2	I:3G2/B-A27/ O:3F3/16G-16/74LS244!
XLA15	2	I:3G2/B-C27/ O:3F3/16G-18/74LS244!
XLA16	2	I:3G2/B-B27/ O:3F2/17G-3/74LS244!
XLA17	2	I:3G2/B-B26/ O:3F2/17G-5/74LS244!
XLA18	2	I:3G1/B-B23/ O:3F2/17G-7/74LS244!
XLA19	2	I:3G1/B-B24/ O:3F2/17G-9/74LS244!
XLA20	2	I:3G1/B-B25/ O:3F2/17G-12/74LS244!
XLA21	2	I:3G1/B-B30/ O:3F2/17G-14/74LS244!
XLA22	2	I:3G1/B-B28/ O:3F2/17G-16/74LS244!
XLA23	2	I:3G1/B-B29/ O:3F2/17G-18/74LS244!
XLCS~	2	O:3A4/16A-9/74LS244! I:3B4/B-A12/
XLSHADOW	2	O:3A4/16A-5/74LS244! I:3B4/B-B21/
XLUA0	2	O:3A3/22A-9/74LS244! I:3B3/B-C8/
XLUA1	2	O:3A3/22A-12/74LS244! I:3C2/B-A9/
XLUA10	2	O:3A2/23A-14/74LS244! I:3B1/B-C5/
XLUA11	2	O:3A2/23A-16/74LS244! I:3C1/B-A6/
XLUA12	2	O:3A2/23A-18/74LS244! I:3B1/B-A8/
XLUA2	2	O:3A3/22A-14/74LS244! I:3B2/B-C7/
XLUA3	2	O:3A3/22A-16/74LS244! I:3C2/B-A7/
XLUA4	2	O:3A3/22A-18/74LS244! I:3B2/B-A3/
XLUA5	2	O:3A2/23A-3/74LS244! I:3C2/B-C3/
XLUA6	2	O:3A2/23A-5/74LS244! I:3B1/B-A4/
XLUA7	2	O:3A2/23A-7/74LS244! I:3C1/B-C4/
XLUA8	2	O:3A2/23A-9/74LS244! I:3B1/B-A5/
XLUA9	2	O:3A2/23A-12/74LS244! I:3C1/B-C6/
XMOR~	2	O:3A4/16A-7/74LS244! I:3C4/B-B18/
XPIL0	2	O:3A4/16A-18/74LS244! I:3B3/B-B9/
XPIL1	2	O:3A3/22A-3/74LS244! I:3C3/B-B10/
XPIL2	2	O:3A3/22A-5/74LS244! I:3B3/B-B12/
XPIL3	2	O:3A3/22A-7/74LS244! I:3C3/B-B11/
XS11#41 #41	2	B:41C5/TH1-4/217057GF! O:41C5/RN9-3/4610X 101 102!
XS116#41 #41	3	I:41C2/27A-2/74PCT244 B:41A1/STR2-2/STR2! B:41A1/RN8-2/4610X 101 103!
XS117#36 #36	2	O:36B6/25H-6/74F00T I:36C6/14G-5/74F08
XS117#41 #41	3	I:41C2/27A-4/74PCT244 B:41A2/STR3-2/STR2! B:41B1/RN8-3/4610X 101 103!

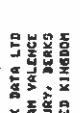
XS118#41	#41	3	I:41C2/27A-6/74PCT244 B:41A2/STR4-2/STR2! B:41B1/RN8-4/4610X 101 103!
XS119#41	#41	3	I:41C2/27A-8/74PCT244 B:41A2/STR5-2/STR2! B:41B1/RN8-5/4610X 101 103!
XS120#41	#41	3	I:41C2/27A-11/74PCT244 B:41A2/STR6-2/STR2! B:41B1/RN8-6/4610X 101 103!
XS120#42	#42	2	B:42F3/R7-1/220OHM! B:42F3/D4-1/1N4148!
XS121#41	#41	3	I:41C2/27A-13/74PCT244 B:41A2/STR7-2/STR2! B:41B1/RN8-7/4610X 101 103!
XS122#41	#41	3	I:41C2/27A-15/74PCT244 B:41A3/STR8-2/STR2! B:41B1/RN8-8/4610X 101 103!
XS123#41	#41	3	I:41C2/27A-17/74PCT244 B:41A3/STR9-2/STR2! B:41B1/RN8-9/4610X 101 103!
XS124#36	#36	2	B:36E5/13D-15/PAL16L8D! I:36F5/14G-2/74F08
XS125#36	#36	2	I:36F2/14C-1/74F00 B:36E1/R18-2/2.2KOHM!
XS127#25	#25	2	I:25F5/18F-9/PAL16R4D O:25E6/17F-8/74F10!
XS130#42	#42	4	B:42E5/R2-1/5.6KOHM! B:42E5/D5-1/1N4148! B:42E6/R3-1/2.2KOHM! I:42F6/7F-3/74F14
XS136#41	#41	2	I:41C5/25A-6/74PCT244 B:41A4/RN7-6/4610X 101 103!
XS14#38	#38	2	O:38D1/13C-6/74LS393! I:38E2/13C-13/74LS393
XS147#40	#40	5	B:40B1/T2-3/2N2907! B:40D2/C4-1/100nF! I:40C4/34A-16/MM58274 B:40C1/D2-2/1N4148! O:40C1/R16-2/10KOHM!
XS148#25	#25	2	B:25F6/RN14-2/4610X 101 102! B:25F7/LED1-1/RED!
XS156#50	#50	2	B:50D2/R22-2/330OHM! B:50D2/LED6-1/GREEN!
XS157#50	#50	2	B:50E2/LED7-1/YELLOW! B:50E2/R23-2/330OHM!
XS16#26	#26	2	O:26B4/RN9-6/4610X 101 102! I:26C5/24H-1/74F74
XS166#50	#50	2	B:50D2/LED6-2/GREEN! O:50D3/12G-4/74LS123!
XS167#50	#50	2	B:50E2/LED7-2/YELLOW! O:50E3/12G-12/74LS123!
XS168#40	#40	2	I:40C4/34A-1/MM58274 B:40B3/T1-3/2N222!
XS174#40	#40	3	I:40A2/T3-2/2N2907! B:40A3/D3-2/4.3V ZENER! O:40A2/R13-2/4.7KOHM!
XS175#40	#40	2	B:40A3/D3-1/4.3V ZENER! I:40A3/R14-1/2.2KOHM!
XS176#50	#50	3	I:50D3/12G-15/74LS123 O:50D2/R24-2/180KOHM! B:50D2/C13-1/2.2uF!
XS178#40	#40	2	B:40A2/T3-3/2N2907! I:40B3/R12-1/10KOHM
XS179#50	#50	3	I:50E3/12G-7/74LS123 B:50E2/C14-1/2.2uF! O:50E2/R25-2/180KOHM!
XS18#26	#26	2	O:26C4/RN9-7/4610X 101 102! I:26C5/24H-4/74F74
XS18#36	#36	2	O:36E5/13D-19/PAL16L8D! I:36F3/14C-10/74F00
XS184#40	#40	2	O:40B3/R12-2/10KOHM! I:40B3/T1-2/2N2222
XS19#36	#36	2	O:36E5/13D-12/PAL16L8D! I:36F4/14C-13/74F00
XS195#40	#40	2	I:40C2/BATT1-2/BATT1 B:40C1/D2-1/1N4148!
XS197#40	#40	2	I:40B1/T2-2/2N2907 I:40C1/R16-1/10KOHM
XS2#7	#7	2	I:7D2/3A-4/74F241 O:7C1/1F-6/74F04!
XS200#40	#40	2	B:40E4/TP7-1/TESTPOINT! O:40C4/34A-13/MM58274!
XS21#7	#7	2	I:7D4/2A-5/7438 O:7D5/8G-6/74F00!
XS26#38	#38	2	O:38B2/12F-6/74S132! I:38C1/11F-2/74S37
XS268#33	#33	3	I:33B7/28F-S17/ND DELILAH B:33A5/RN12-4/4610X 101 103! B:33A6/STR15-2/STR2!
XS269#33	#33	3	I:33B7/28F-R14/ND DELILAH B:33A5/RN12-3/4610X 101 103! B:33A6/STR14-2/STR2!
XS27#7	#7	2	O:7D4/1F-10/74F04! I:7D4/2A-1/7438
XS270#33	#33	3	B:33A6/STR13-2/STR2! I:33B7/28F-S16/ND DELILAH B:33A5/RN12-2/4610X 101 103!
XS277#33	#33	2	I:33B7/28F-P7/ND DELILAH B:33A6/RN12-5/4610X 101 103!
XS278#33	#33	2	I:33B7/28F-S6/ND DELILAH B:33A6/RN12-6/4610X 101 103!
XS281#33	#33	2	I:33B7/28F-P13/ND DELILAH B:33A7/RN12-9/4610X 101 103!
XS295#33	#33	2	I:33B7/28F-Q5/ND DELILAH B:33A7/RN12-8/4610X 101 103!
XS3#33	#33	2	T:33A4/34G-9/74PCT374! I:33B7/28F-S13/ND DELILAH
XS3#42	#42	2	B:42B7/TH2-6/217057GF! I:42C6/33G-11/AM29C821
XS30#38	#38	5	I:38B3/12F-10/74S132 B:38A3/D1-1/3.3V ZENER! I:38A4/R11-1/1KOHM B:38A4/C3-1/10nF! I:38B4/12F-12/74S132
XS310#48	#48	2	B:48E4/3F-18/PAL16L8D! I:48F4/7A-13/7407
XS32#40	#40	3	I:40C4/34A-15/MM58274 B:40C3/X2-1/32.768KHZ! B:40D3/C5-1/22pF!
XS321#48	#48	2	I:48C7/14F-4/AM29C821 O:48C7/14F-22/AM29C821!
XS322#48	#48	2	I:48C4/13F-3/AM29C821 O:48C4/13F-23/AM29C821!
XS323#48	#48	2	I:48C4/13F-5/AM29C821 O:48C4/13F-21/AM29C821!
XS327#48	#48	2	I:48C7/14F-6/AM29C821 O:48C7/14F-20/AM29C821!
XS328#48	#48	2	I:48C7/14F-7/AM29C821 O:48C7/14F-19/AM29C821!
XS329#48	#48	2	I:48C7/14F-8/AM29C821 O:48C7/14F-18/AM29C821!
XS33#40	#40	3	O:40C4/34A-14/MM58274! B:40C3/X2-2/32.768KHZ! B:40D3/C6-1/22pF!
XS340#45	#45	2	I:45E2/7G-1/PAL16R8B O:45C2/2D-9/74F74!
XS360#3	#3	6	I:3D6/20A-1/74LS244 I:3D6/20A-19/74LS244 I:3D4/18A-1/74LS244 I:3D4/18A-19/74LS244 B:3C5/STR17-1/STR1! O:3C4/RN13-4/4610X 101 102!
XS372#3	#3	6	I:3D7/5G-1/74F244 I:3D7/5C-19/74F244 I:3E7/4G-1/74F244 I:3E7/4G-19/74F244 B:3C7/STR18-1/STR1! O:3C6/RN13-5/4610X 101 102!
XS374#45	#45	3	O:45C1/RN18-7/4610X 101 102! I:45C2/2D-12/74F74 I:45C2/2D-10/74F74
XS375#45	#45	2	I:45E7/2D-4/74F74 O:45E6/RN18-6/4610X 101 102!
XS38#7	#7	2	I:7E7/2A-10/7438 O:7D7/9D-10/74F02!
XS382#45	#45	2	I:45G3/8K-10/HP5082 7433 O:45F2/8H-13/74LS248!

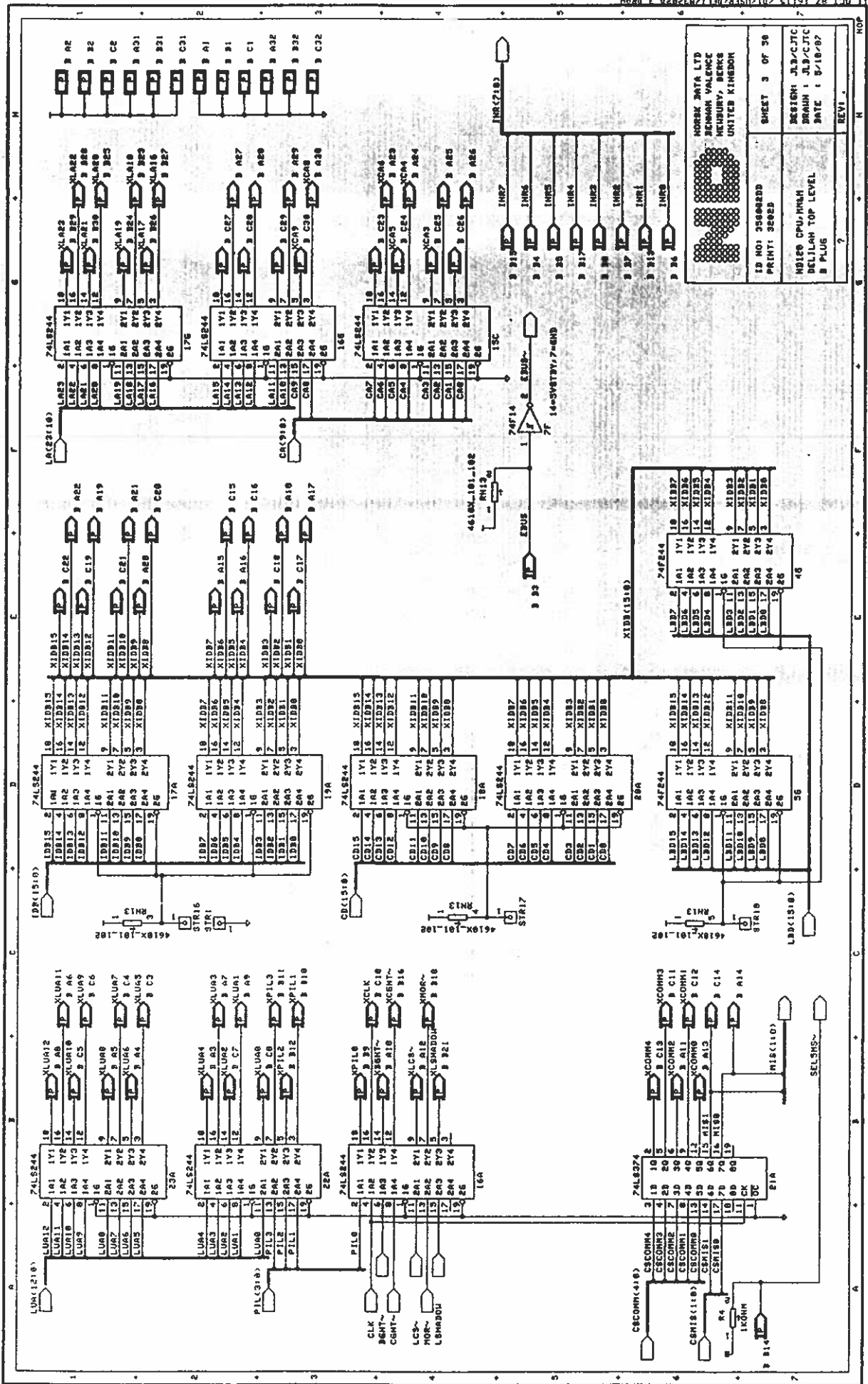
XS383#45	#45	2	I:45G3/8K-8/HP5082 7433	O:45F2/8H-12/74LS248
XS384#45	#45	2	I:45G3/8K-5/HP5082 7433	O:45F2/8H-11/74LS248
XS385#45	#45	2	I:45G3/8K-3/HP5082 7433	O:45F2/8H-10/74LS248
XS386#45	#45	2	I:45G3/8K-2/HP5082 7433	O:45F2/8H-9/74LS248
XS387#45	#45	2	I:45G3/8K-11/HP5082 7433	O:45F2/8H-15/74LS248
XS388#45	#45	2	I:45G3/8K-9/HP5082 7433	O:45F2/8H-14/74LS248
XS4#26	#26	2	I:26D4/27H-17/74PCT244	O:26C5/24H-6/74F74
XS4#33	#33	2	T:33A4/34G-12/74PCT374	I:33B7/28F-R12 ND DELILAH
XS4#42	#42	2	B:42B7/TH2-2/217057GF	I:42C6/33G-10/AM29C821
XS428#47	#47	2	I:47C2/7C-8/74PCT374	B:47B1/RN4-4 4610X 101 222
XS429#47	#47	2	I:47C2/7C-13/74PCT374	B:47B1/RN4-3 4610X 101 222
XS44#41	#41	2	B:41E2/LED2-1/RED	O:41E2/RN14-4 4610X 101 102
XS45#41	#41	2	B:41E2/LED3-1/GREEN	O:41E2/RN14-5 4610X 101 102
XS453#3	#3	6	I:3D2/17A-1/74LS244	I:3D2/17A-19/74LS244
			I:3D3/19A-1/74LS244	I:3D3/19A-19/74LS244
				B:JC2/STR16-1/STR1
			O:3C2/RN13-3/4610X 101 102	
XS48#41	#41	2	O:41F4/29A-6/74F00	I:41F4/14A-1/74LS38
XS48#7	#7	2	O:7D3/2B-3/74F00	I:7E3/2B-4/74F00
XS5#33	#33	2	T:33A4/34G-15/74PCT374	I:33B7/28F-N10 ND DELILAH
XS5#38	#38	2	O:38B2/12F-3/74S132	I:38B2/12F-5/74S132
XS5#42	#42	2	B:42B7/TH2-5/217057GF	I:42C6/33G-9/AM29C821
XS5#87	#7	2	I:7E3/2B-9/74F00	O:7E3/2B-6/74F00
XS52#7	#7	2	I:7E3/2B-10/74F00	O:7E3/1F-8/74F04
XS56#7	#7	2	I:7D5/8G-4/74F00	O:7C5/8G-3/74F00
XS57#7	#7	2	I:7C5/8G-1/74F00	O:7C4/1F-12/74F04
XS58#11	#11	3	I:11D5/6B-22/74AS646	I:11D4/7B-22 74AS646
			O:11F2/RN19-10/4610X 101 102	
XS58#41	#41	2	O:41E4/28A-9/74LS273	B:41E2/LED3-2/GREEN
XS6#33	#33	2	T:33A4/34G-16/74PCT374	I:33B7/28F-S12 ND DELILAH
XS6#38	#38	2	O:38B2/7F-8/74F14	I:38B2/12F-4/74S132
XS6#41	#41	2	B:41C5/TH1-3/217057GF	I:41C5/25A-11/74PCT244
XS6#42	#42	2	B:42B7/TH2-3/217057GF	I:42C6/33G-8/AM29C821
XS611#44	#44	3	O:44B5/4H-14/AM29C821	O:44B2/3H-14/AM29C821
			B:44D4/5H-11/AM29861A	
XS612#44	#44	3	O:44B5/4H-15/AM29C821	O:44B2/3H-15/AM29C821
			B:44D4/5H-10/AM29861A	
XS613#44	#44	3	O:44B5/4H-16/AM29C821	O:44B2/3H-16/AM29C821
			B:44D4/5H-9/AM29861A	
XS614#44	#44	3	O:44B5/4H-17/AM29C821	O:44B2/3H-17/AM29C821
			B:44D4/5H-8/AM29861A	
XS615#44	#44	3	O:44B5/4H-18/AM29C821	O:44B2/3H-18/AM29C821
			B:44D4/5H-7/AM29861A	
XS616#44	#44	3	O:44B5/4H-19/AM29C821	O:44B2/3H-19/AM29C821
			B:44D4/5H-6/AM29861A	
XS617#44	#44	3	O:44B5/4H-20/AM29C821	O:44B2/3H-20/AM29C821
			B:44D4/5H-5/AM29861A	
XS618#44	#44	3	O:44B5/4H-21/AM29C821	O:44B2/3H-21/AM29C821
			B:44D4/5H-4/AM29861A	
XS619#44	#44	3	O:44B5/4H-22/AM29C821	O:44B2/3H-22/AM29C821
			B:44D4/5H-3/AM29861A	
XS62#40	#40	2	B:40D7/X3-2/4MHZ	I:40D7/35C-6/MC68705U3
XS620#44	#44	3	O:44B5/4H-23/AM29C821	O:44B2/3H-23/AM29C821
			B:44D4/5H-2/AM29861A	
XS622#44	#44	2	I:44D4/5H-1/AM29861A	B:44D2/R15-2/2.2KOHM
XS63#40	#40	3	B:40D7/X3-1/4MHZ	B:40D7/C7-1/22pF
			I:40D7/35C-5/MC68705U3	
XS65#41	#41	2	I:41F4/14A-2/74LS38	O:41F4/11B-6/74LS04
XS69#41	#41	2	I:41F5/14A-10/74LS38	O:41F5/11B-8/74LS04
XS7#33	#33	2	T:33A4/34G-19/74PCT374	I:33B7/28F-Q10 ND DELILAH
XS7#41	#41	2	B:41C5/TH1-5/217057GF	I:41C5/25A-13/74PCT244
XS72#2	#2	5	I:2B6/13B-1/74F04	I:2B6/13B-3/74F04
			I:2B7/13B-5/74F04	
			I:2B7/13B-9/74F04	O:2A5/R8-2/1KOHM
XS73#38	#38	2	O:38B4/12F-11/74S132	I:38C4/29H-12/74F32
XS76#36	#36	2	I:36B6/25H-10/74F00	O:36B6/32C-6/74F32
XS768#46	#46	2	I:46E5/8J-15/74LS112	O:46D5/14G-11/74F08
XS77#36	#36	2	I:36B6/25H-4/74F00	O:36B6/32C-3/74F32
XS786#46	#46	2	I:46E7/8J-14/74LS112	O:46D7/14G-8/74F08
XS790#46	#46	5	I:46E5/8J-3/74LS112	I:46E5/8J-4/74LS112
			I:46E7/8J-11/74LS112	I:46E7/8J-10/74LS112
				O:46E4/RN14-8/4610X 101 102
XS792#46	#46	2	O:46E5/8J-6/74LS112	B:46F5/LED4-2/RED
XS793#46	#46	2	B:46D5/LED5-1/RED	O:46D5/RN14-7/4610X 101 102
XS795#46	#46	2	B:46F5/LED4-1/RED	O:46F4/RN14-9 4610X 101 102
XS8#33	#33	2	I:33A4/34G-11/74PCT374	O:33A5/7F-6/74F14
XS8#38	#38	2	O:38B1/10F-12/74F10	I:38C1/11F-1/74S37
XS8#41	#41	2	B:41C5/TH1-2/217057GF	I:41C5/25A-15/74PCT244
XS80#42	#42	2	B:42B7/TH2-4/217057GF	O:42B6/RN9-2/4610X 101 102
XS83#17	#17	4	I:17E5/32G-1/AM29841	I:17D2/29H-5/74F32
			I:17D1/29H-2/74F32	O:17D6/11F-11/74S37
XS85#42	#42	2	O:42C5/RN7-4/4610X 101 103	I:42C6/33G-7/AM29C821
XS87#17	#17	2	O:17D1/29H-3/74F32	I:17E2/30H-14/74F373
XS88#17	#17	2	O:17D2/29H-6/74F32	I:17E2/30H-17/74F373
XS9#41	#41	2	B:41C5/TH1-6/217057GF	I:41C5/25A-17/74PCT244
XS91#42	#42	2	I:42B3/32H-21/5C2661	O:42A1/11B-2/74LS04
XS92#41	#41	3	O:41G3/11B-4/74LS04	I:41G3/2A-12/7438

XS93#36 #36 2 I:41G3/2A-13/7438
XTAL1 #38 3 O:36F2/9D-4/74F02! I:36F2/5D-3/74F02
I:38D1/13C-1/74LS393 O:38A1/X4-3/39.3216MHZ!
I:38B1/10F-1/74F10
XTAL2 #38 2 O:38A2/X1-3/35MHZ! I:38B2/12F-2/74S132
XTR 5 B:2E2/RN1-5/4610X 101 102! O:2D3/A-B4!! O:2D3/A-C23!!
B:42B3/32H-25/SC2661! B:42B3/32H-9/SC2661!

SIGNAL TYPE: " " HIERARCHICAL BETWEEN BLOCKS
----- "+n" INTERPAGE ONLY ON BLOCK NO. n
"m" INTRAPAGE ONLY ON PAGE NO.



 HORSK DATA LTD BENHAM VALENCIE HENBURY, BERKS UNITED KINGDOM	
ID NO: 3500020 PRINT: 30020	SHEET 2 OF 30
MD120 CPU, MMH DELTAH TOP LEVEL A PLUE	DESIGN: JLB/CJTC BRNMM: JLB/CJTC DATE: 15/10/65
REV: 1 ?	REV: 1 ?



MOORE DATA LTD
REMARK VALENCE
HEMBURY, BEKS
UNITED KINGDOM

PRINT: 3000

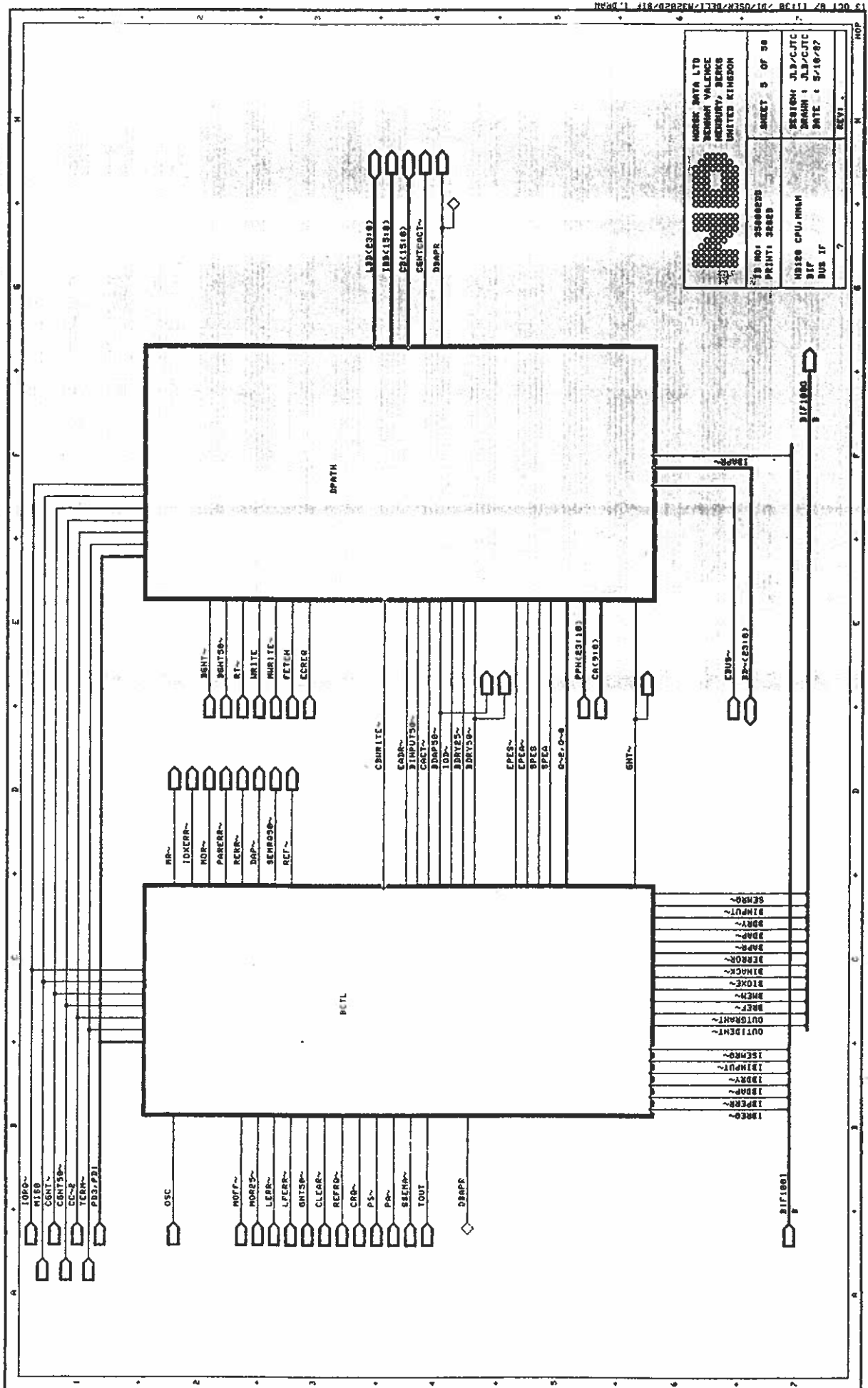
NOI 35000000

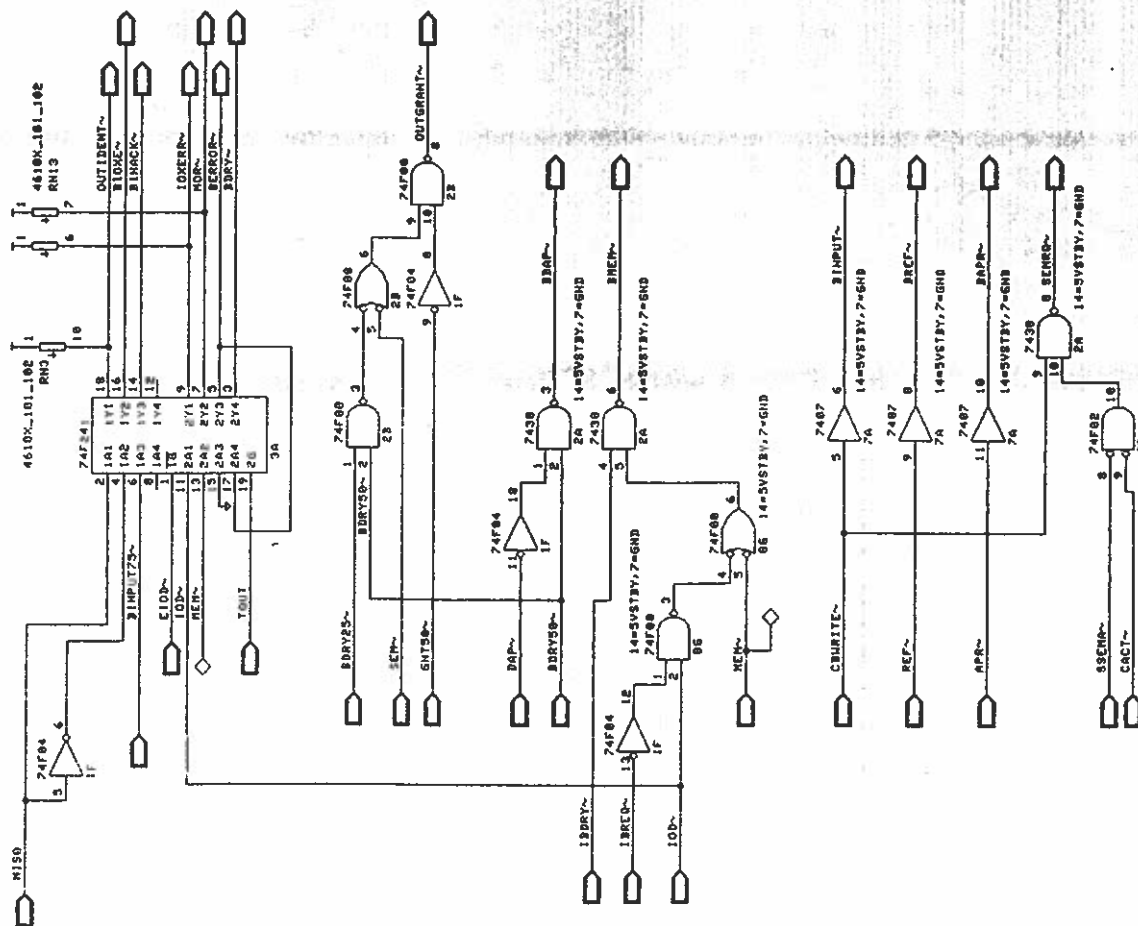
DESIGN: JLB/CJC
BRANCH: JLB/CJC
DATE: 5/10/87

SHEET 3 OF 36

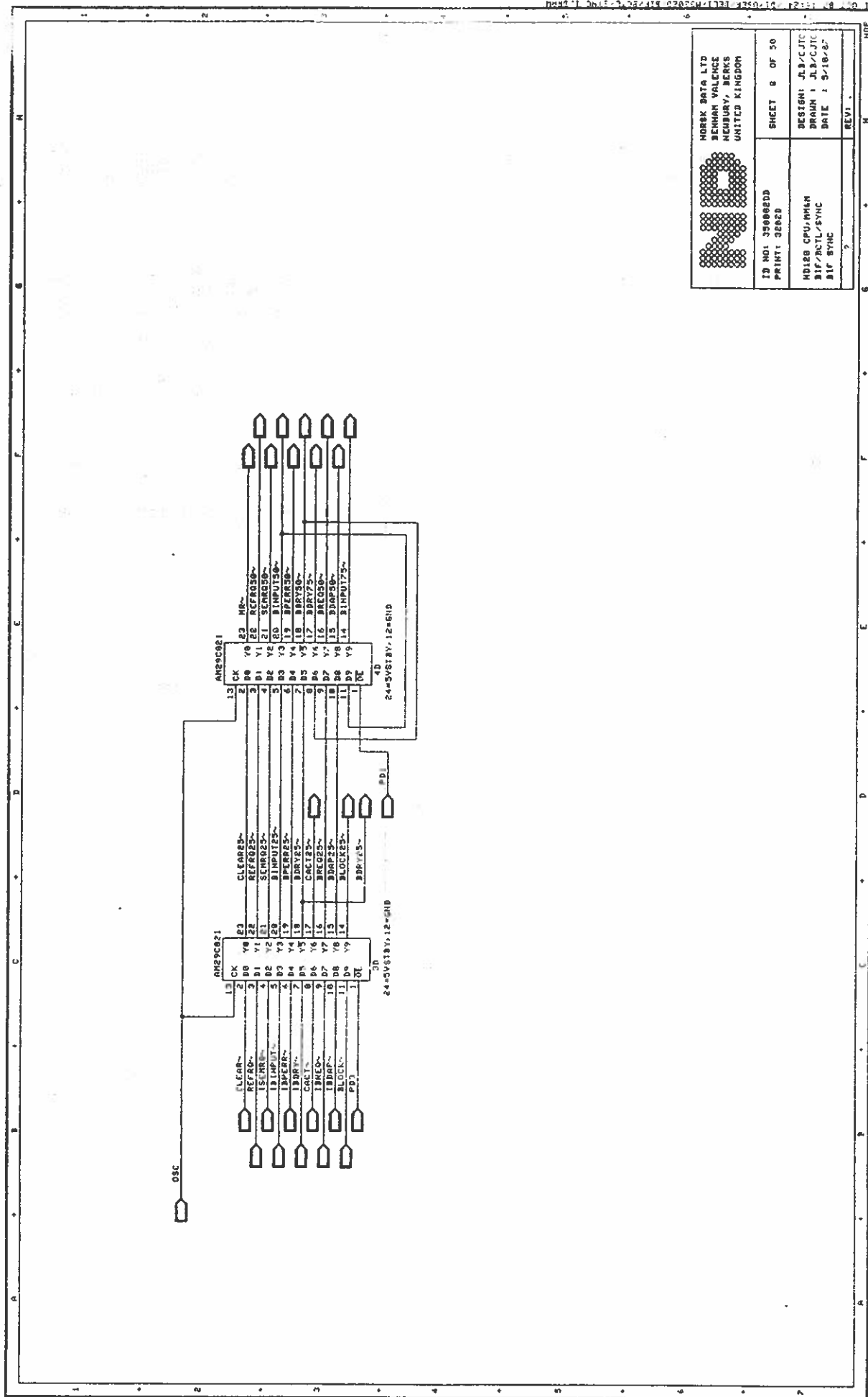
REVI: 7

11 00 87 15:13 / D1-USER/DEL/M20202.3.DRAW

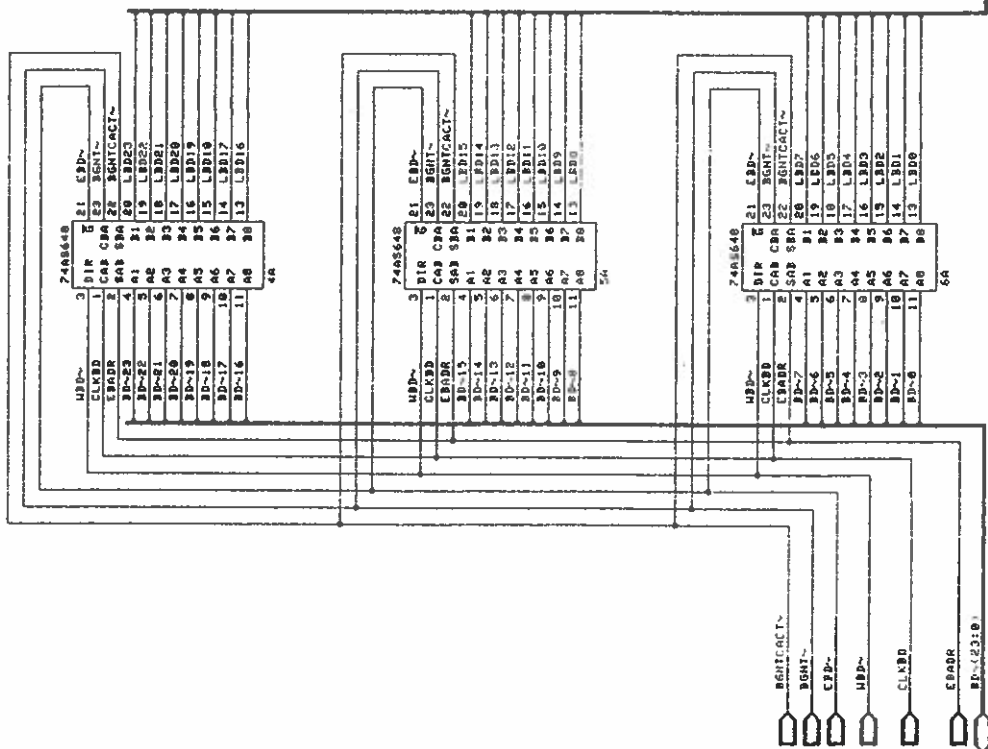




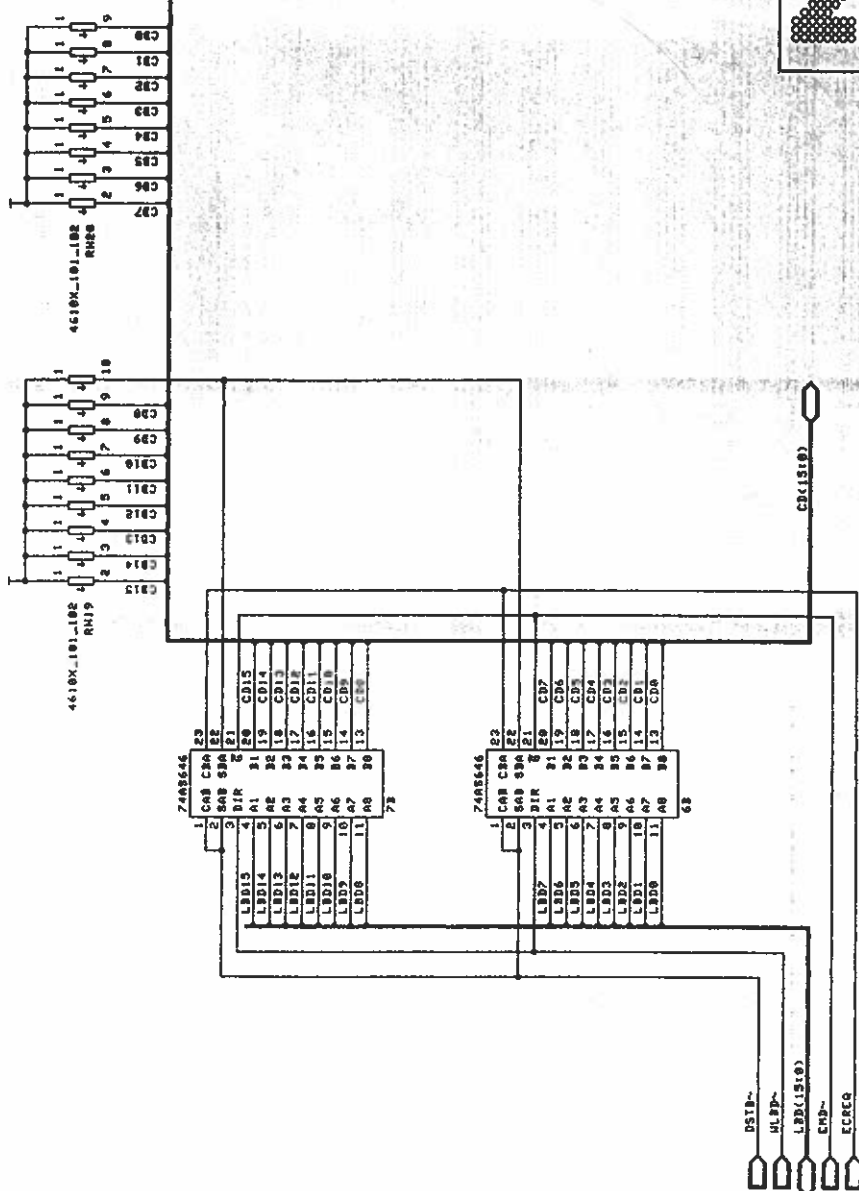
	10 NO: 3060625 PRINT: 3880	SHEET 7 OF 56	HOBBS DATA LTD 25 MANMAN VALENTI INDIANUR, BEKERS UNITED KINGDOM
10160 CPU, MMAN 317/ACTL/DRV BUS DRIVERS	DESIGN: J.B./CJTC DRAWN: J.B./CJTC DATE: 5/10/87	30606	2



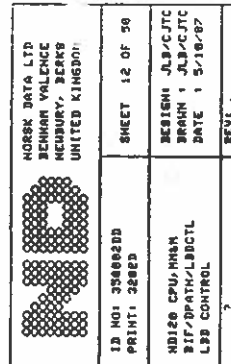
 NORBIT DATA LTD BENHAM VALENCIA MEMBERSHIP, MARKS UNITED KINGDOM		SHEET 8 OF 50	
ID NO: 35000203 PRINT: 32020	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 5/10/82	REV: 1	

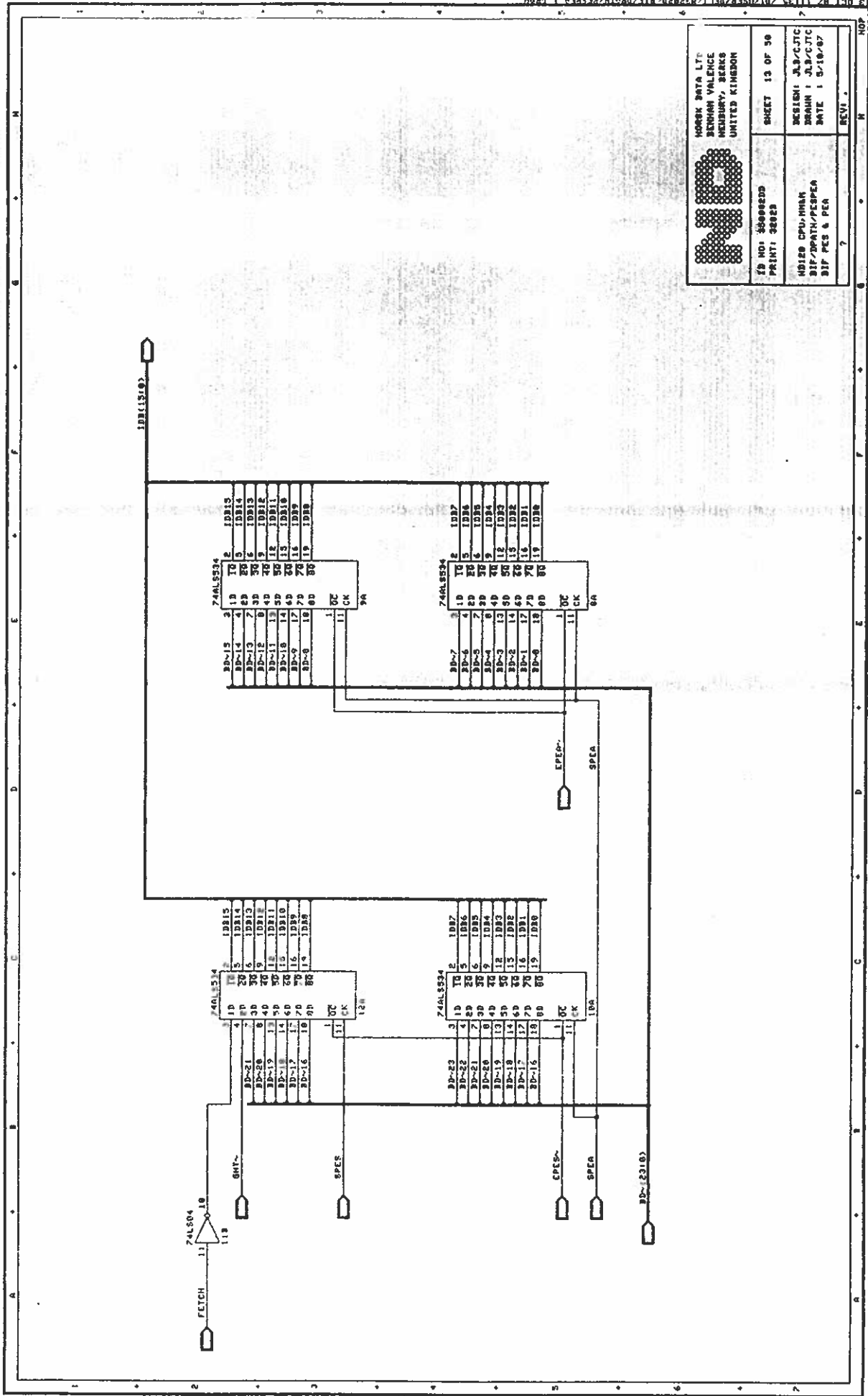


	ID NO: 350802DD PRINT: 3E2B2	MOREK DATA LTD BISHAM VALENCIA HENRIQUEZ, BECKS UNITED KINGDOM	SHEET 10 OF 50
	HDIO CPU MMH BIF/DPATH/BL/3D BIF 3D TO LBP	DESIGN: DB/CJTC DRAWN: JDB/CJTC DATE: 3-10-97	DESU



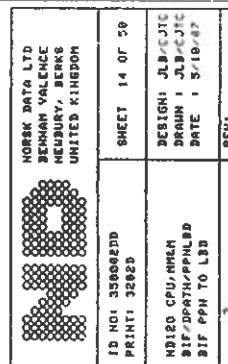
	MOORE DATA LTD SEAHAM VANCE HEDDERBURY, SEARS UNITED KINGDOM	SHEET 11 OF 50	DESIGN : J.P.C./J.C. DRAWN : J.P.C./J.C. DATE : 5/10/87	REV1 :
13 MOI 25606439 PRINT: 28023	HD180 CPU,MMH BIF,DPATH,CILED BIF CD TO L33			?

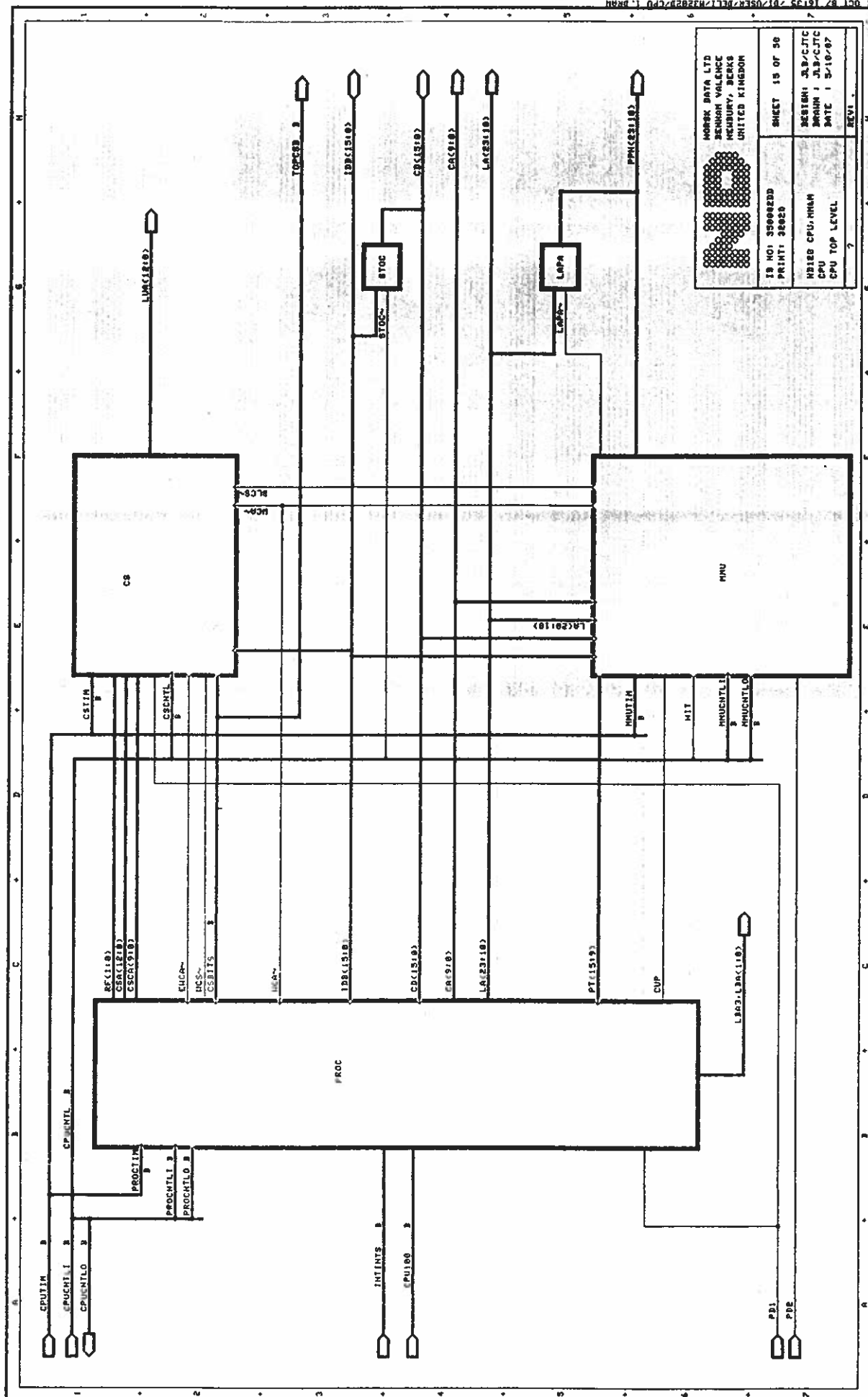


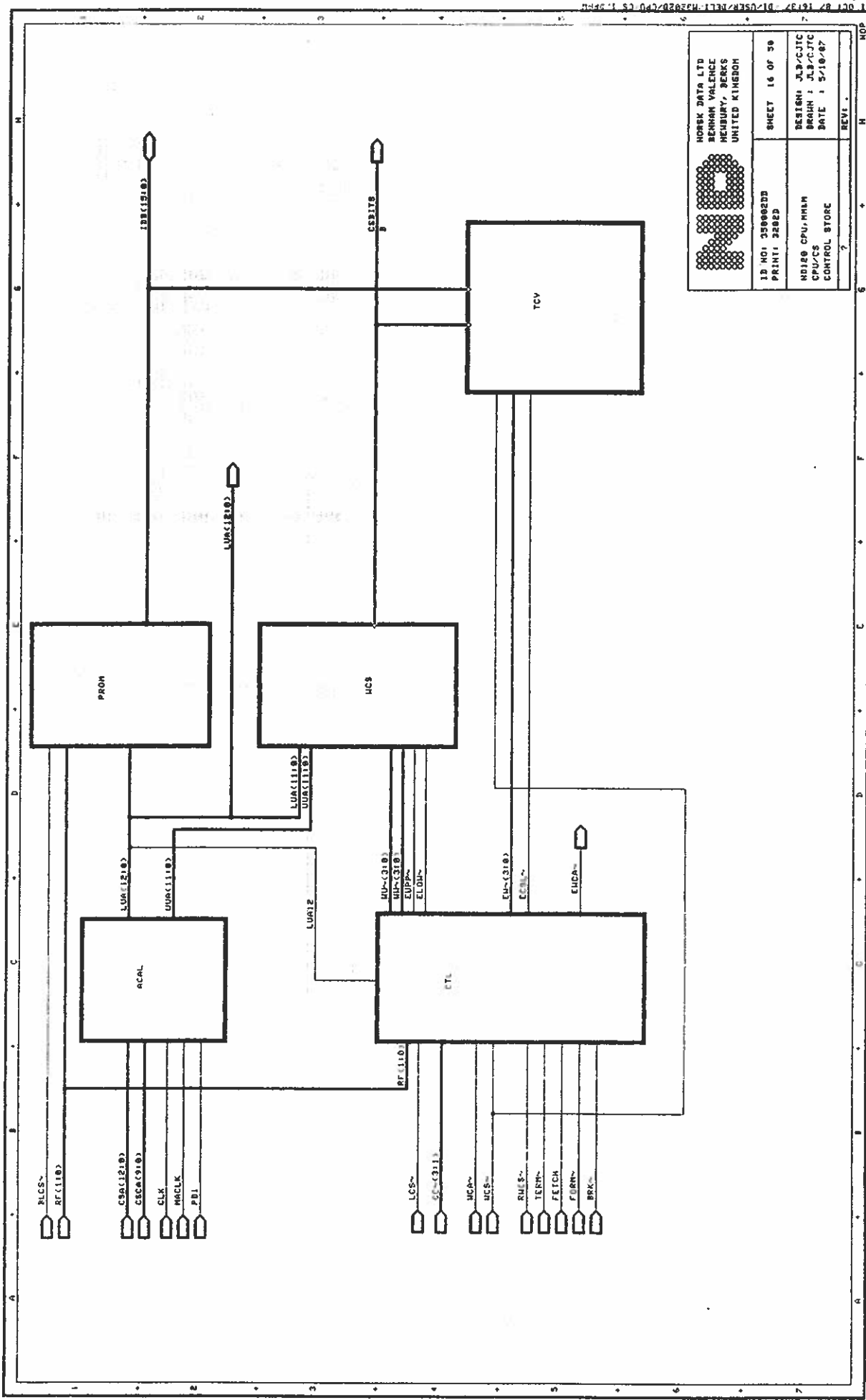


		MOORE DATA LTD SCURRY VALENT HILBURY, SEAS UNITED KINGDOM	
10 H01 30000000	PRINT: 3000	SHEET 13 OF 50	
H0100 CPU-MAN		DESIGN: JLB/CJC	
BIF/PATH/PCSEA		DRAWN: JLB/CJC	
BIF PCS & PEA		DATE: 15/10/87	
7		REV: .	

13 OCT 87 11:35 / D:\USER\BELT\H0100\H0100.PESEA 1.0MAN

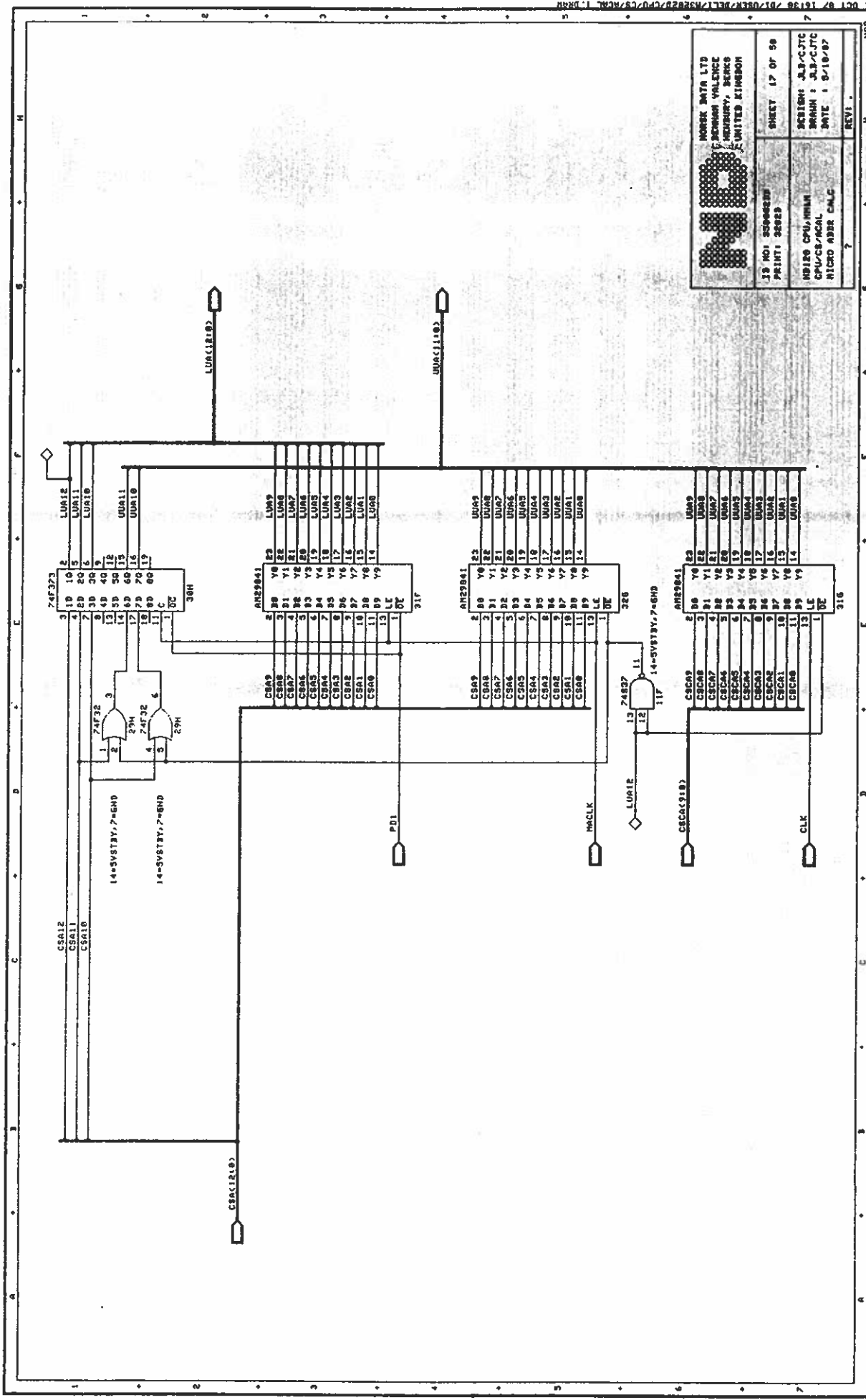




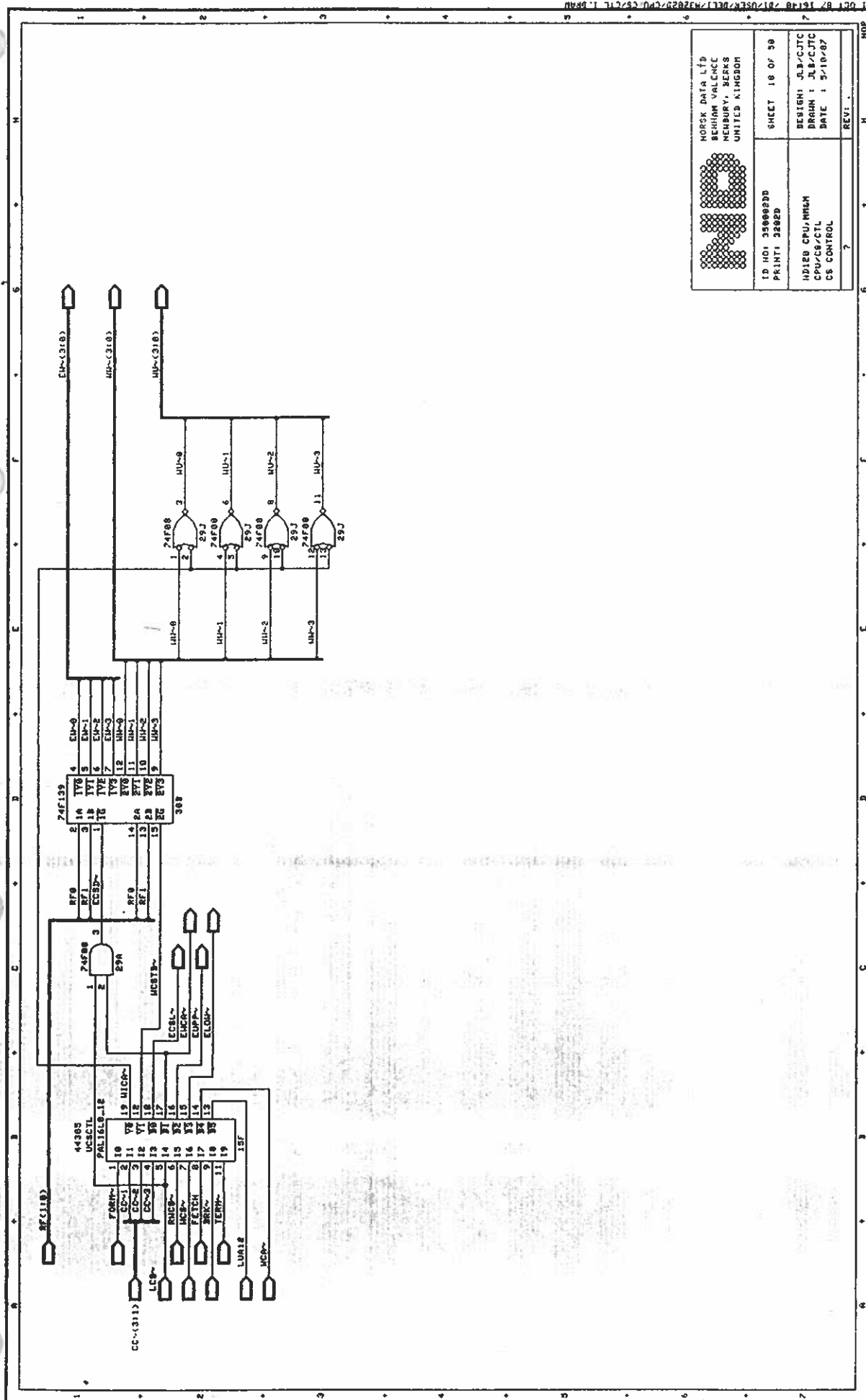


HORSK DATA LTD BENHAM VALENCIE HENBURY, DERKS UNITED KINGDOM	
13 NO1 350002DD PRINT: 282D	SHEET 16 OF 39
ND100 CPU, MMW CPU/CS CONTROL STORE	DESIGN: JLB/CJIC DRAWN: JLB/CJIC DATE: 15/10/87
2	REV: .

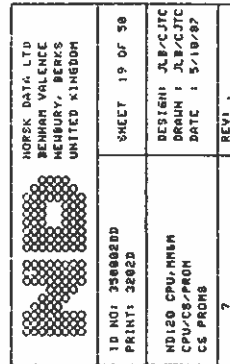
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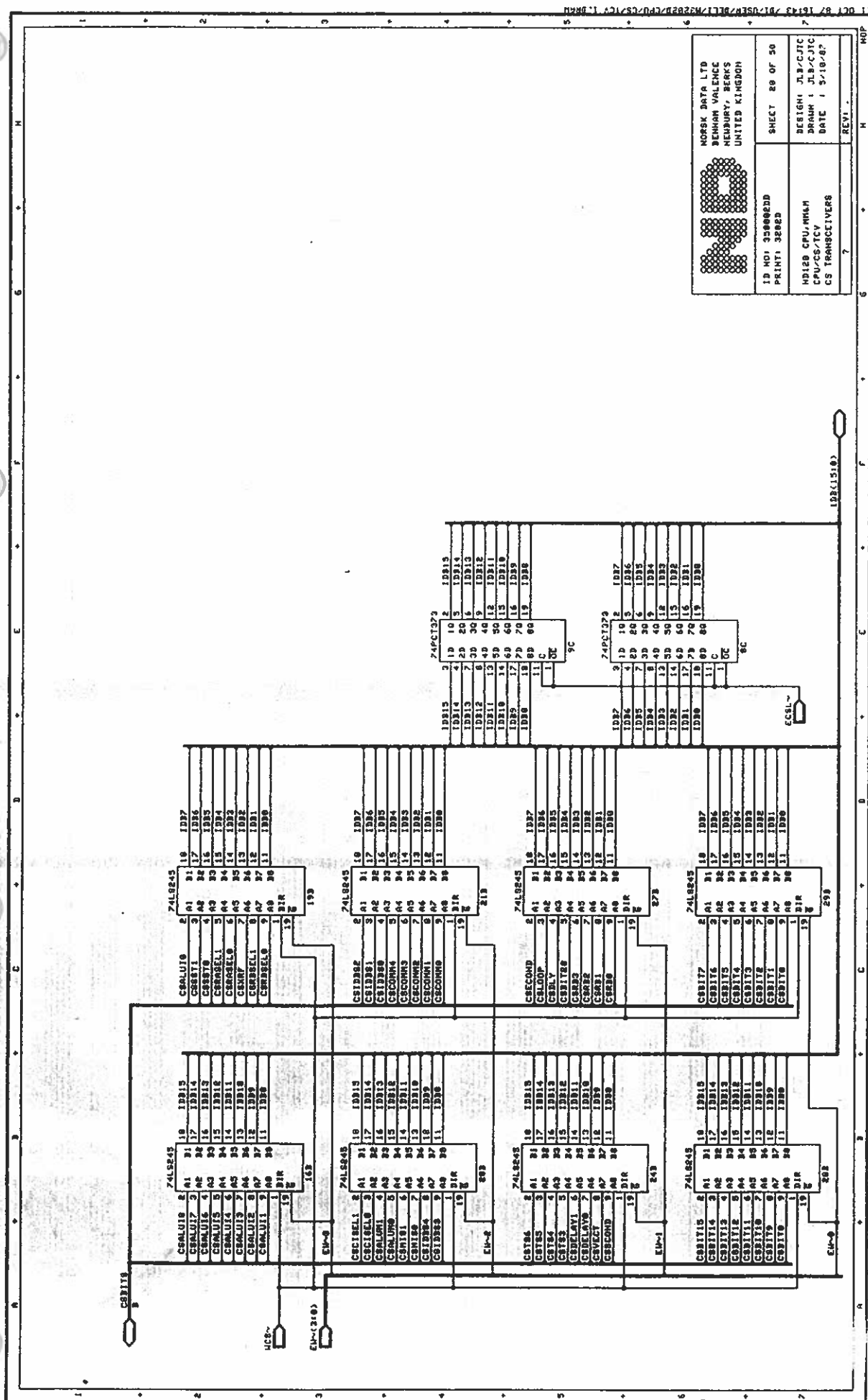


	MOBILE DATA LTD 10120 CPU/MILAN CPU/CS/ACAL MICRO ADDR CALC
PRINT: 250025 SHEET 17 OF 58	SECTION: ALU-C/JTC DRAWN: ALU-C/JTC DATE: 10/10/87
REV:	REV:



ID NO: 250002DD PRINT: 3888D		NORSK DATA LTD BENJAMIN VALANCE NEWBURY, BERKS UNITED KINGDOM	SHEET 18 OF 39
HD05 CPU, MEM CPU/CS/CTL CS CONTROL	2	SYSTEM: 3.3-C/TC PROGRAM: 3.8-C/TC DATE: 5/10/82	CPU:





ROSKOPF DATA LTD
BENHAM VALENCE
HENBURY, BERKS
UNITED KINGDOM

ID NO: 350002DD SHEET 20 OF 25

0 1 2 3 4 5 6 7 8 9	РЭЗЕРВ
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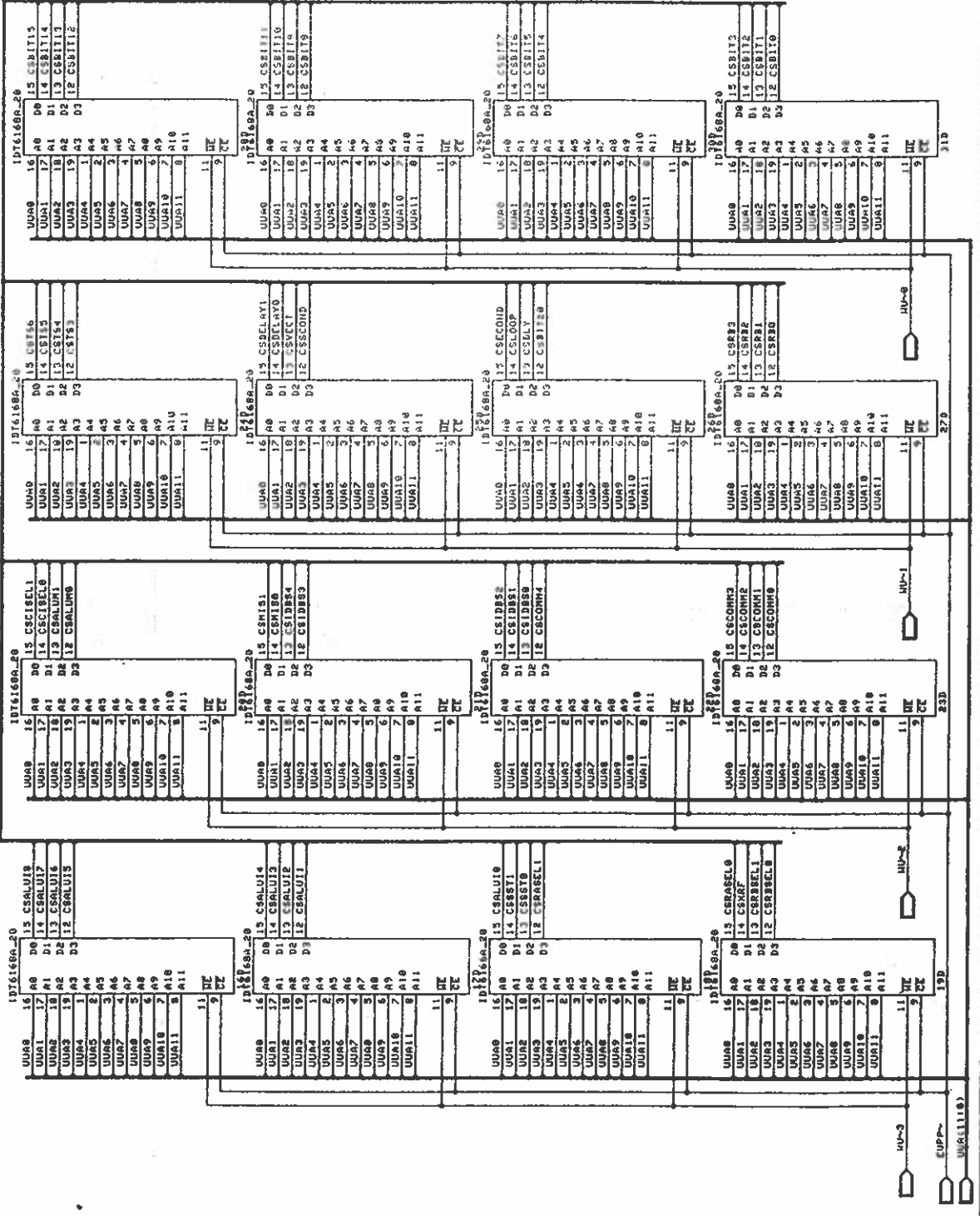
WD120 CPU,MM&M
CPU-CS/TCV

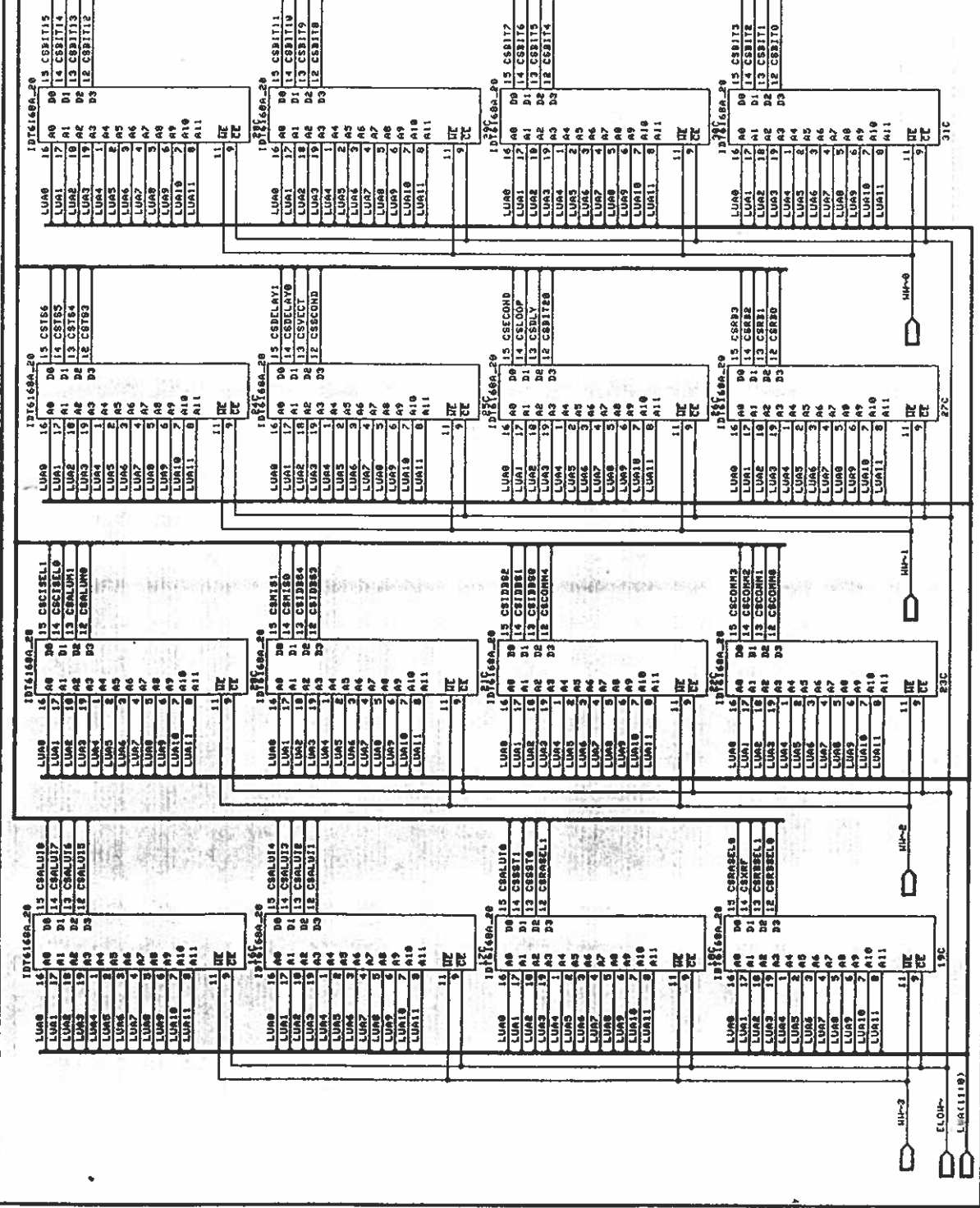
CS TRANSCIVERS	DATE : 3/10/81
	REF:

11

CSB175

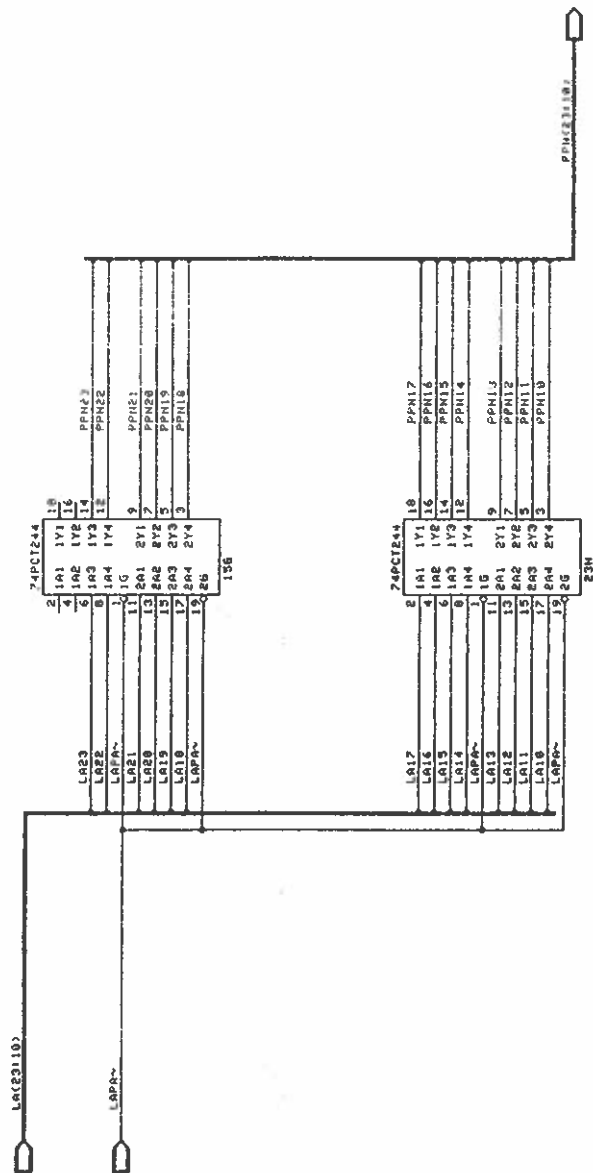
10 HDI 35000200
PRINTI 38823
SHEET 21 OF 30
DESIGN: JUL/CJT
BROWN: JUL/CJT
DATE: 1 5/10/87

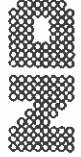


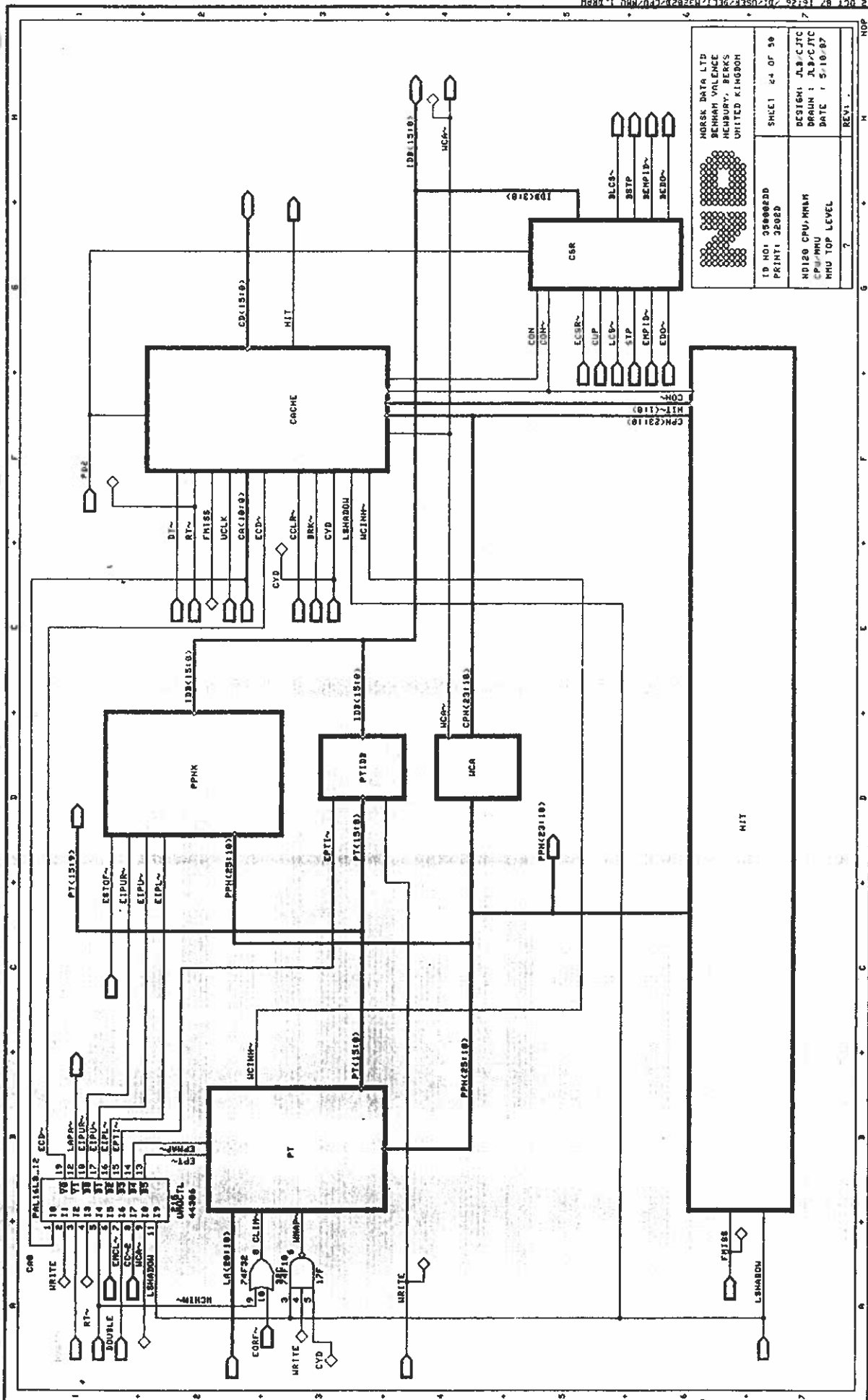


ID NO: 3500023D
PRINT: 30023
ND120 CPU/MEM
/CPU/CS/UCS
SHEET 22 OF 30
DESIGN: JLB/CJTC
DRAWN: JLB/CJTC
DATE: 5/10/87

11 001 82 1614 2/01/USCM/DEL1/H3023/CPU/CS/UCS 2. PRGM



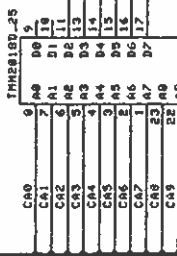
		NORSE DATA LTD BENHAM VALENCE NEWBURY, BERKS UNITED KINGDOM	
ID NO: 35000200	PRINT: 32020	SHEET 23 OF 38	
MB120 CPU, MMX	LA TO PPN BUFF	DESIGN: JLB/CJTC	DATE: 5/10/97
		REV: 1	



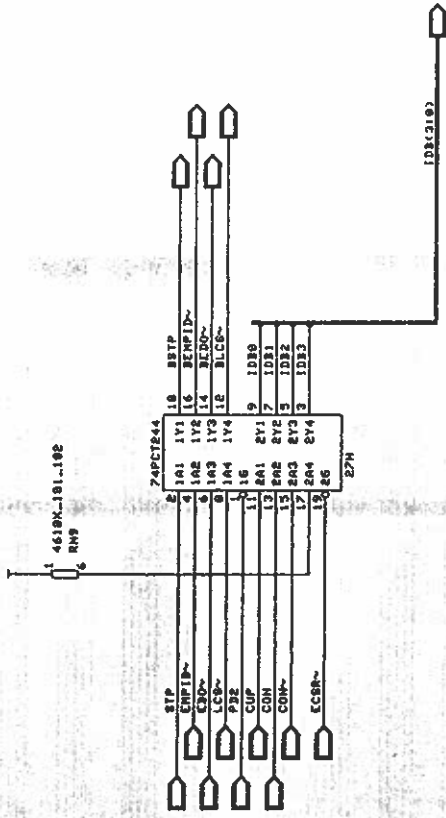
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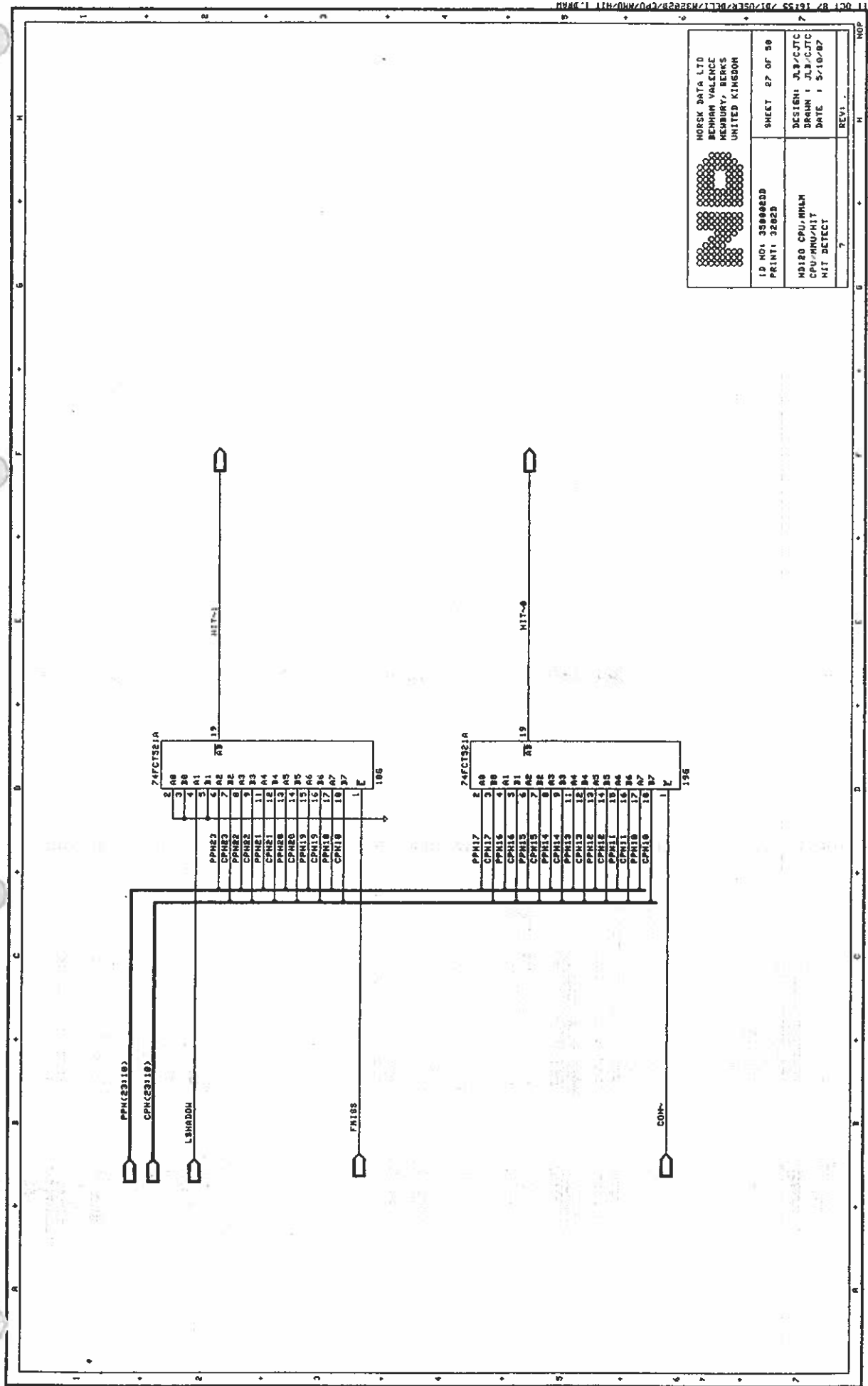
CA(1010)

CA(1010)



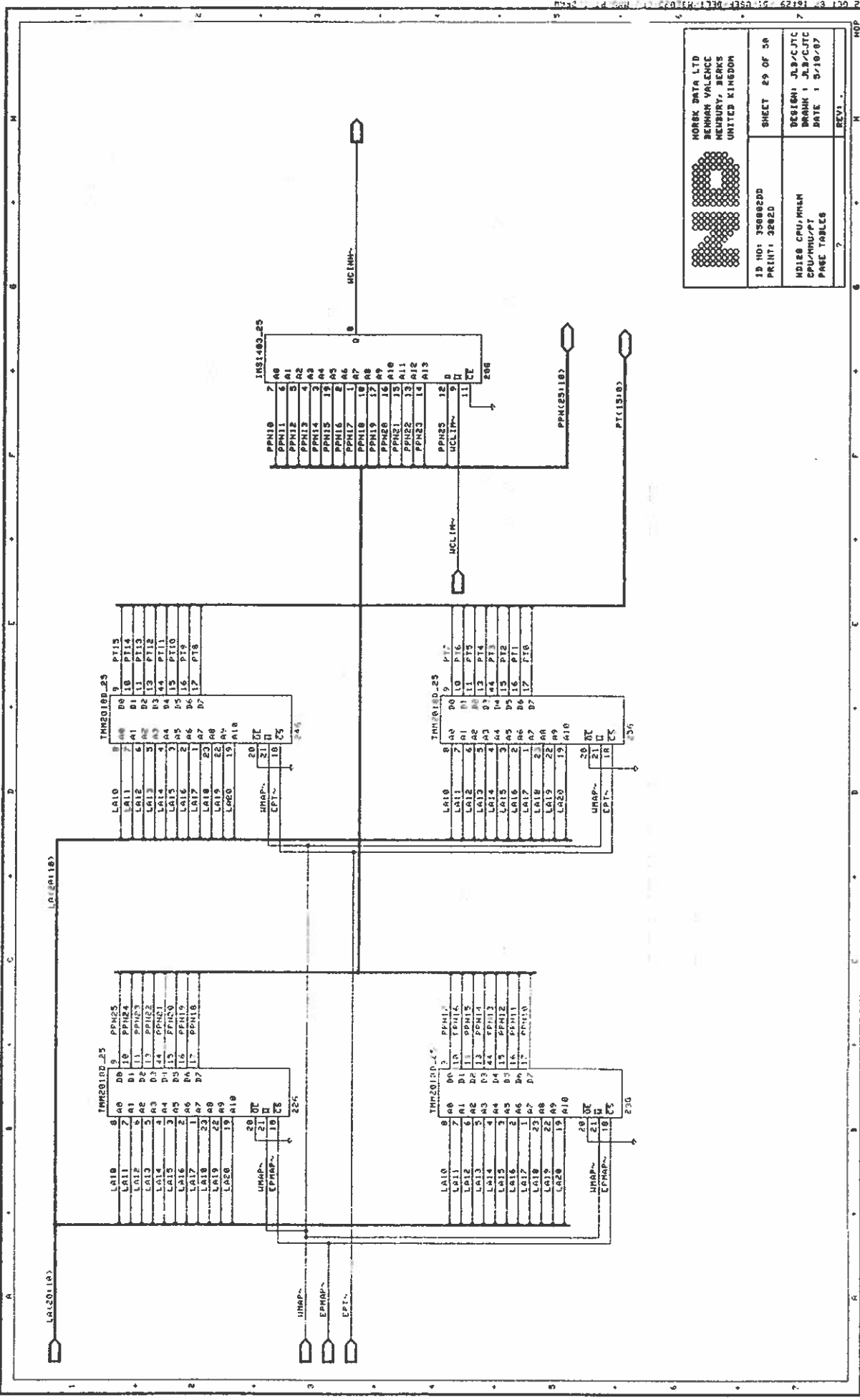
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	ID NO: 358002DB PRINT: 0202D	SHEET 26 OF 30
DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 15/10/87		
CPU/MNU/CSR CACHE STATUS REG		
REVI: -		

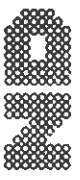




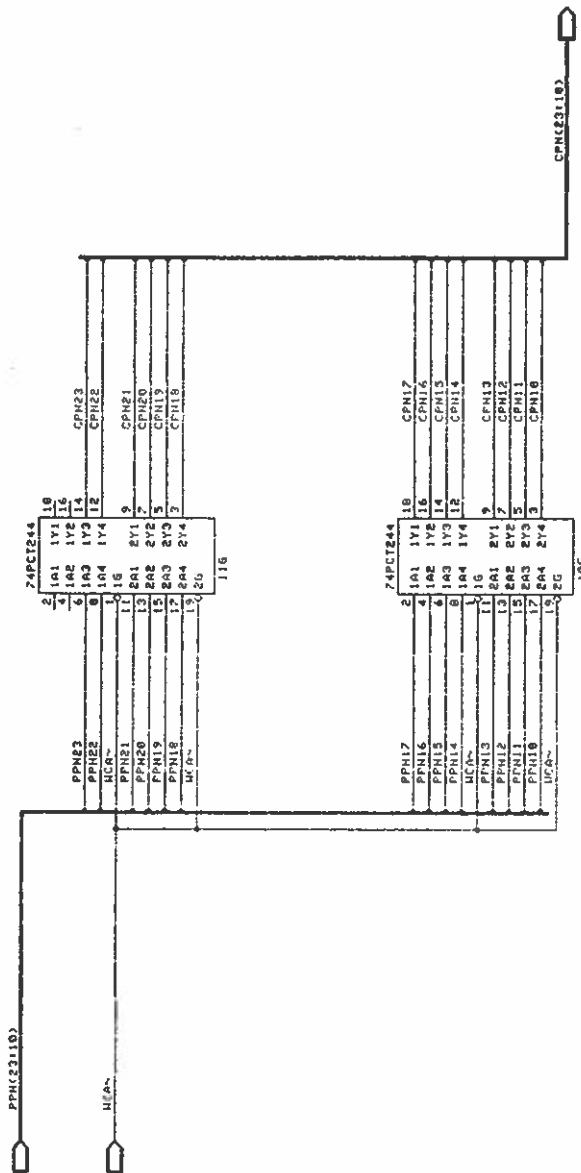
DR NORSK DATA LTD BENHAM VALENCE MEMBURY, BERKS UNITED KINGDOM	
ID NO: 358080D PRINT: 32025	SHEET 27 OF 39
MD120 CPU/MHM CPU/MHM/HIT HIT DETECT	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 15/10/87
7	REV: .

1 OCT 87 16:55 /BI/USLR/MLI/M3828/CPU/MHM/HIT I.DRAW

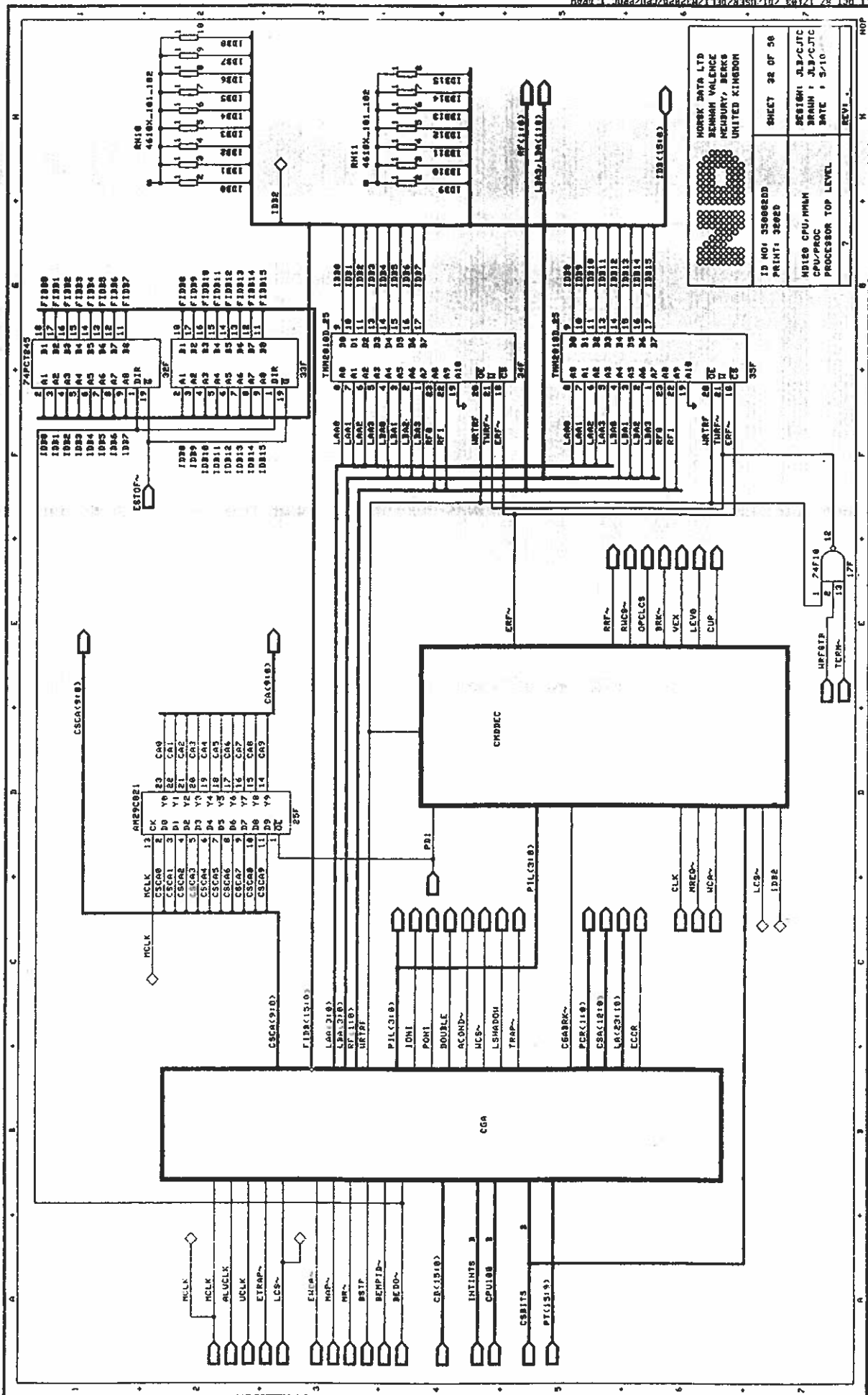


		HOREK DATA LTD BENHAR VALENCIE HENDURTY, BERKS UNITED KINGDOM	
ID NO: 358822D PRINT: 3282D	SHEET 29 OF 58		DESIGN: JLB/CJT/C DRAWN: JLB/CJT/C DATE: 15/10/87
MD188 CPU-MEM CPU-MEM/PT PAGE TABLES	REVI:		

NOP



		NORSK DATA LTD BENHAM VALENTINE NEWBURY, BERKS UNITED KINGDOM	
ID NO: 3580820D PRINT: 32820	SHEET 31 OF 50	DESIGN: JLB/CJT/C DRAWN: JLB/CJT/C DATE: 15/10	REV:



MOORE DATA LTD
RENNAN VALENTINE
RENNAN VALENTINE
UNITED KINGDOM

19 001 35000200
PRINT: 30000

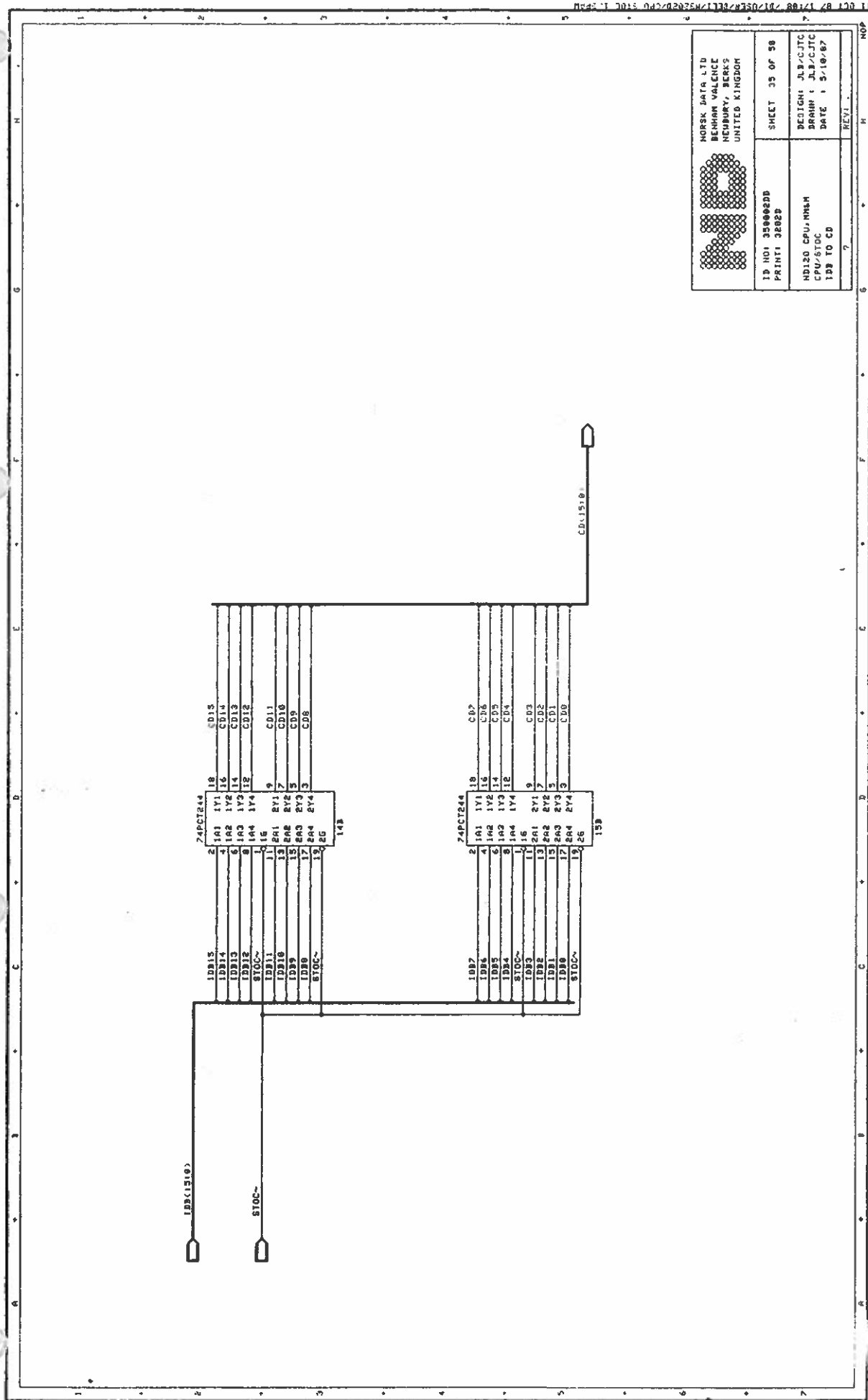
DESIGN: JLB/CJC
BRUNN: JLB/CJC
DATE: 5/10

SHEET 22 OF 56

REVISION

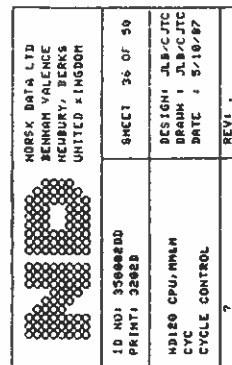


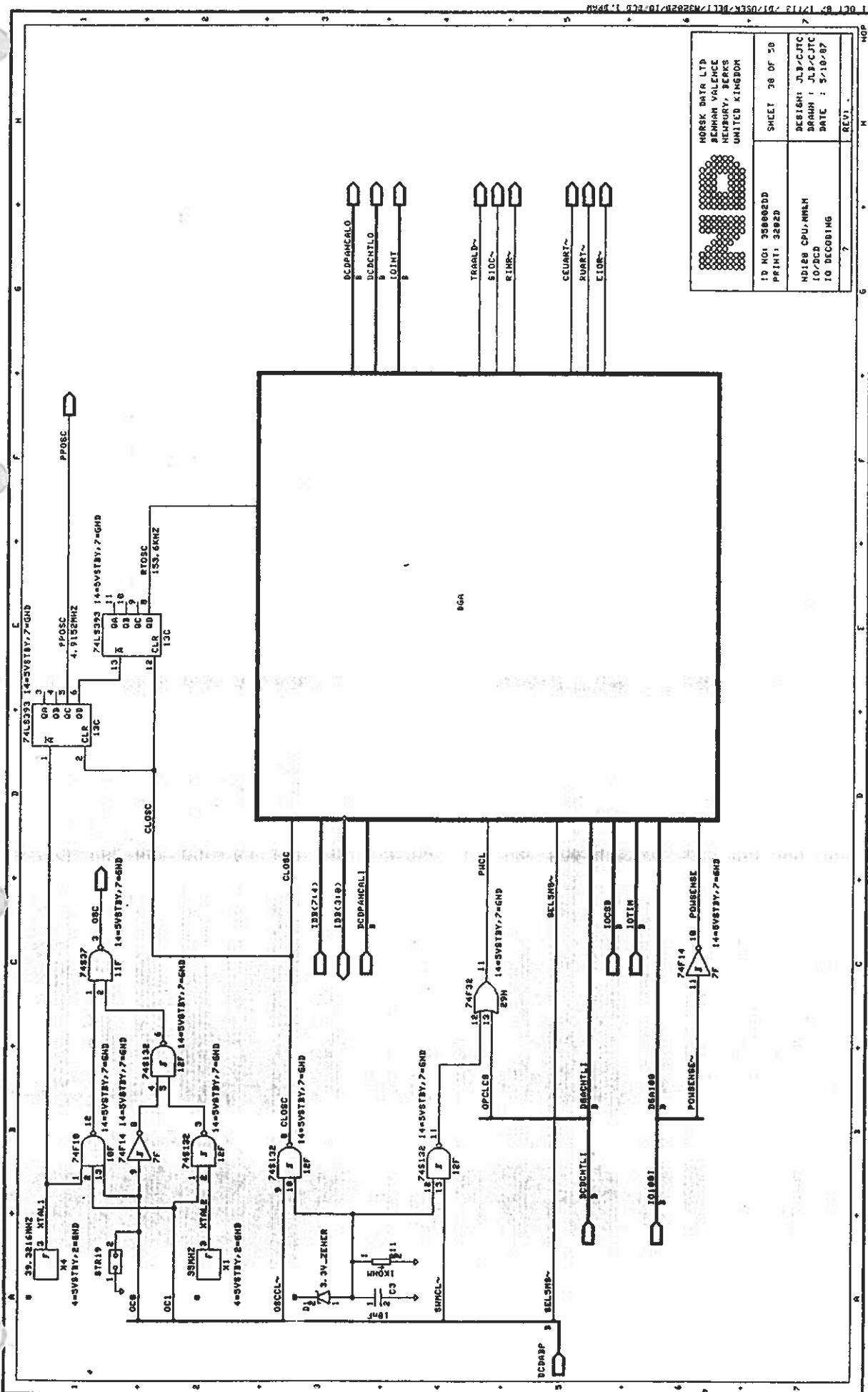
	ID NO: 3569822D PRINT: 32828	MORSE DATA LTD SCHWAB VALENCE MCLENNAN, BEKKS UNITED KINGDOM	SHEET 34 OF 38
MS18 CPU:MMRM CPU:PROC:CHDEC COMMAND & 128 DECODE	DECODED: JLB/C-JTC BRAIN: JLB/C-JTC DATE: 5-18-87	DECODED: JLB/C-JTC BRAIN: JLB/C-JTC DATE: 5-18-87	DECODED: JLB/C-JTC BRAIN: JLB/C-JTC DATE: 5-18-87



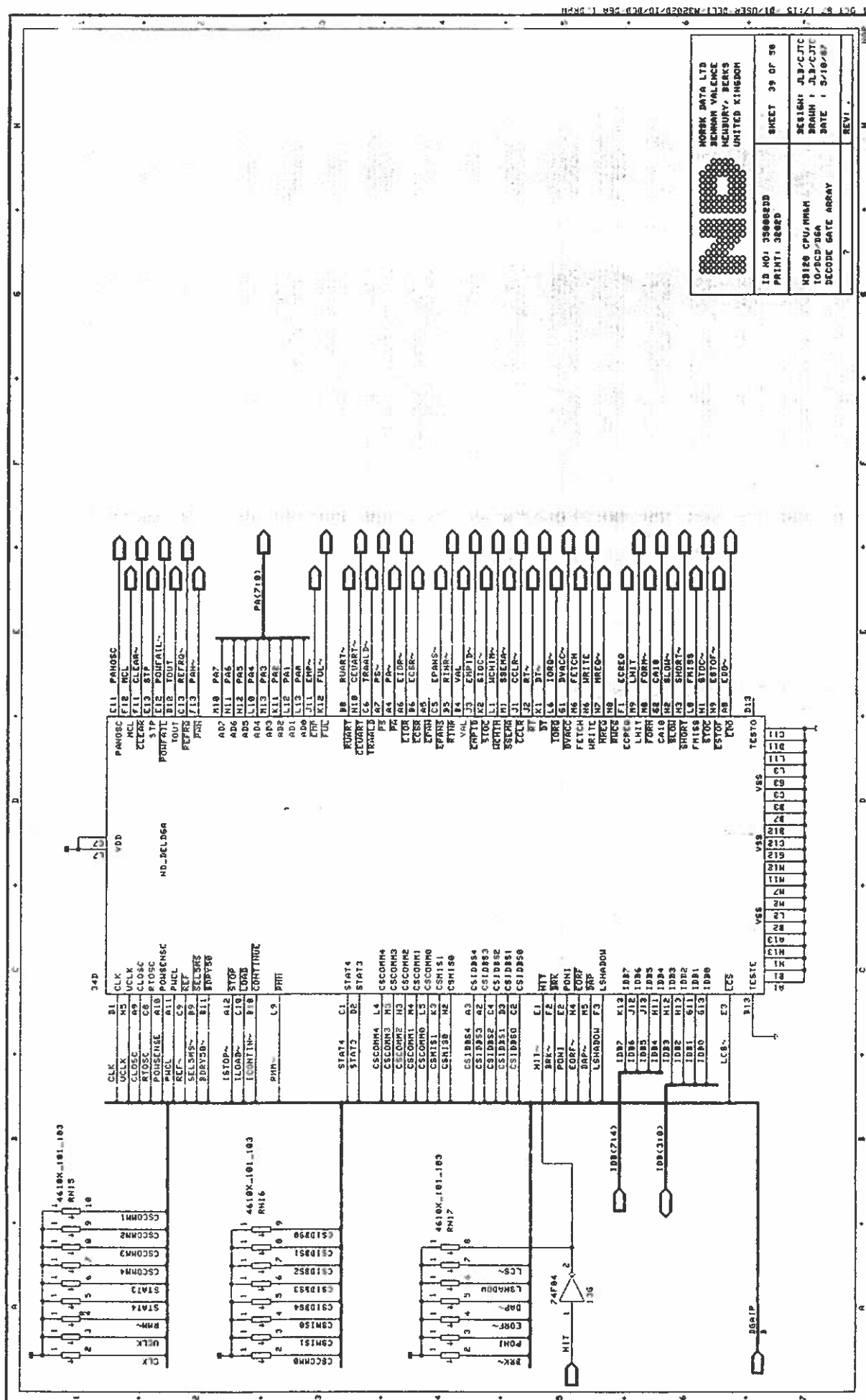
		NORSK DATA LTD BENJAMIN VALENCE NEWBURY, BERKS UNITED KINGDOM	
ID NO: 350002DD PRINT: 3E02D	SHEET 35 OF 50	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 5/10/87	REV:
HD130 CPU, MMH CPU/STOC 128 TO CD	7	7	7

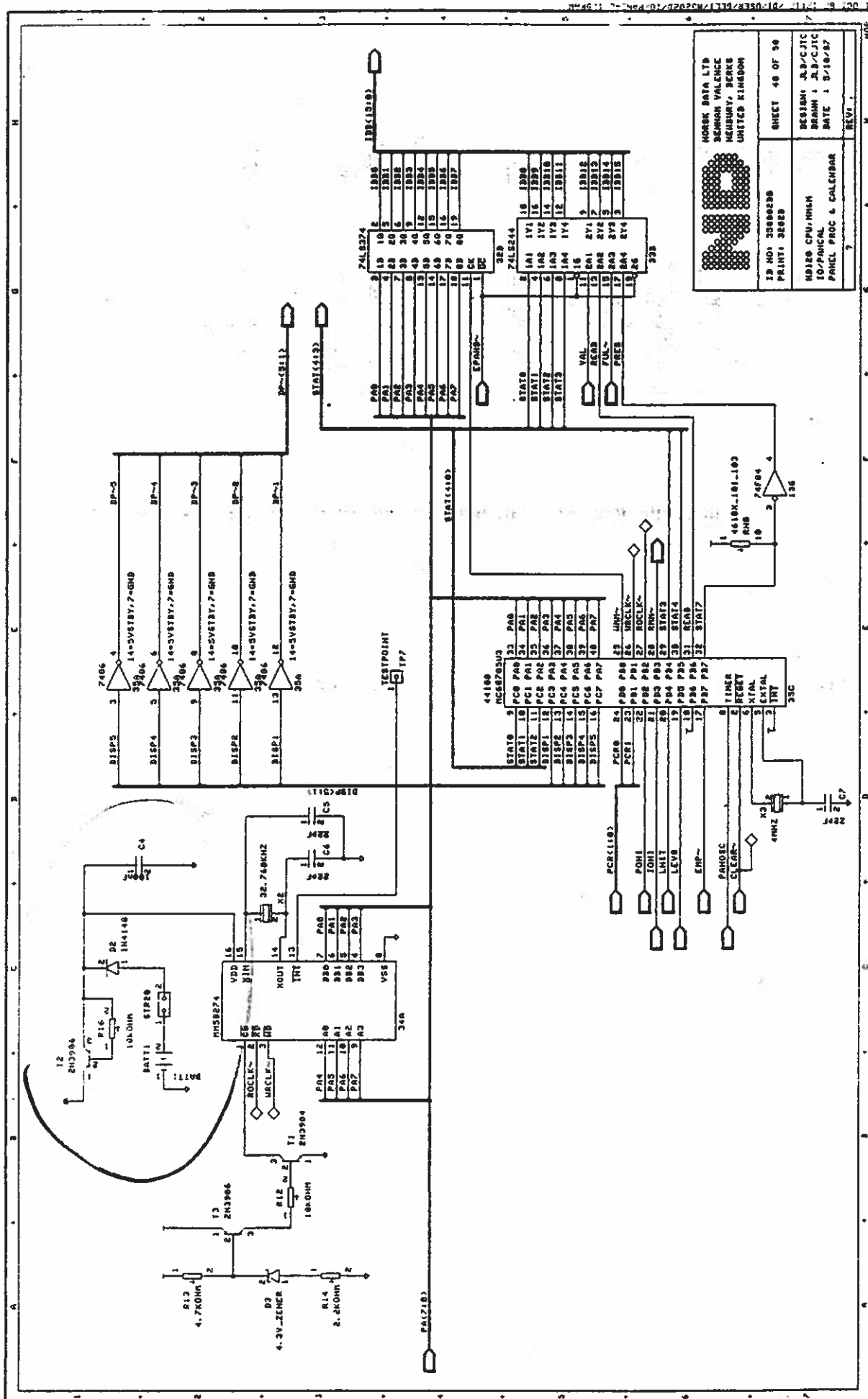
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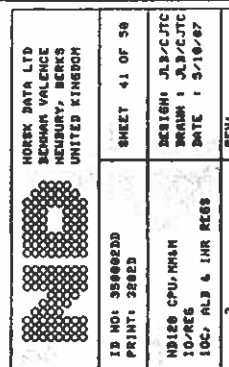




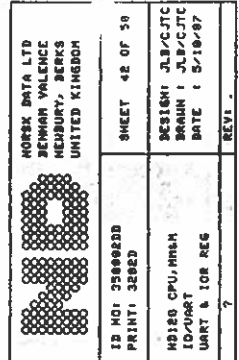
	10 H01 358002DD PRINT: 35802D	SHEET 38 OF 38	DESIGN: JLB/CJC DRAWN: JLB/CJC DATE: 5/18/87	REV: 1
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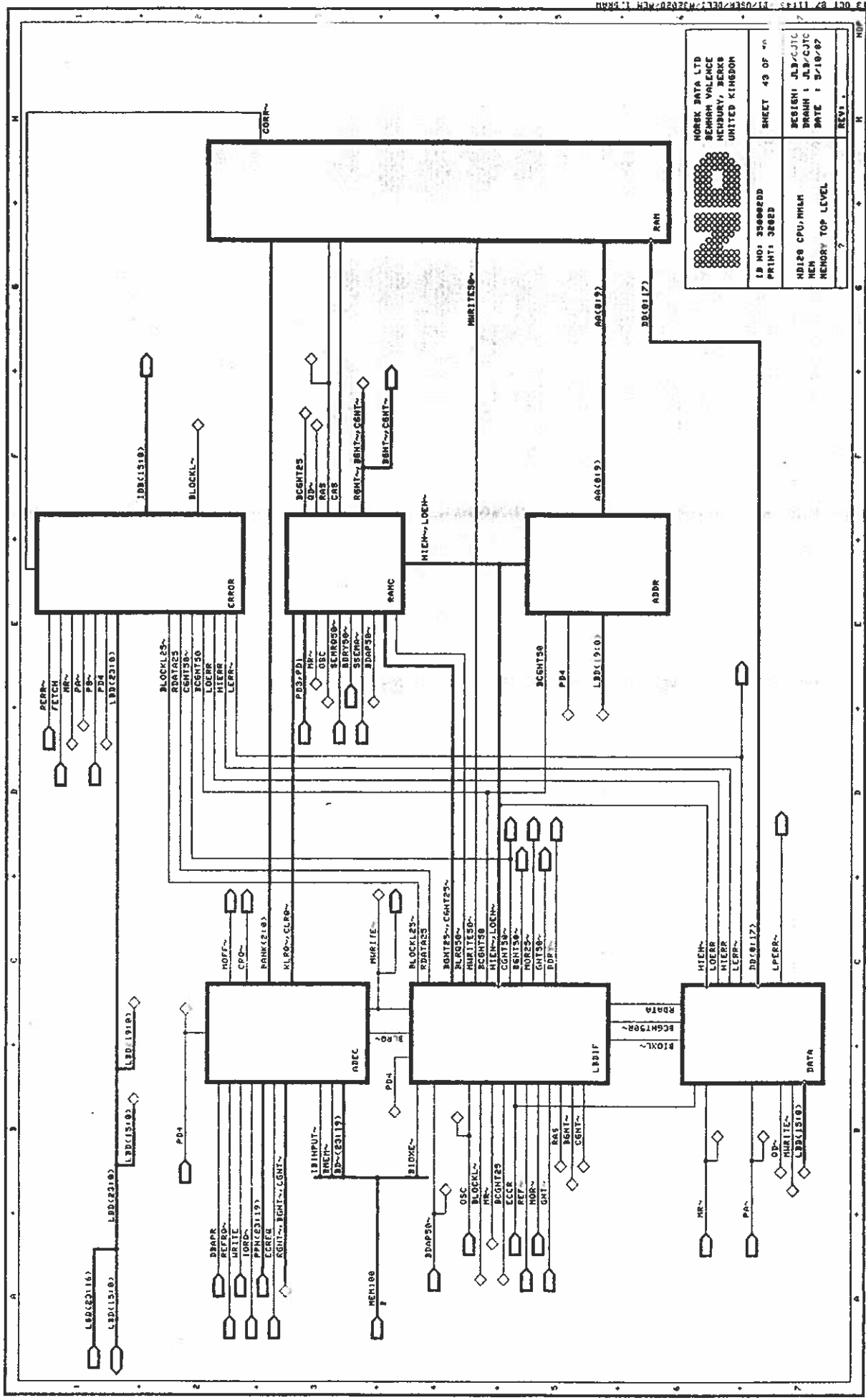


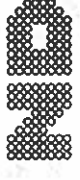




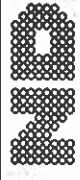
↑ D-level or strap here!





		HORSBACH LTD BENHAM VALENTINE NEWBURY, BERKS UNITED KINGDOM	
IS NO: 350002DD	PRINT: 35002	SHEET 49 OF 49	
ND128 CPU, MHLA	ND128 CPU, MHLA	DESIGN: JLB/CJC	
NEW	NEW	DRAWN: JLB/CJC	
MEMORY TOP LEVEL	MEMORY TOP LEVEL	DATE: 9/10/87	
REV: 1	REV: 1	REV: 1	

300



MOREK DATA LTD
SENGHAI VALENCIA
HECHURRY, BERKS
UNITED KINGDOM

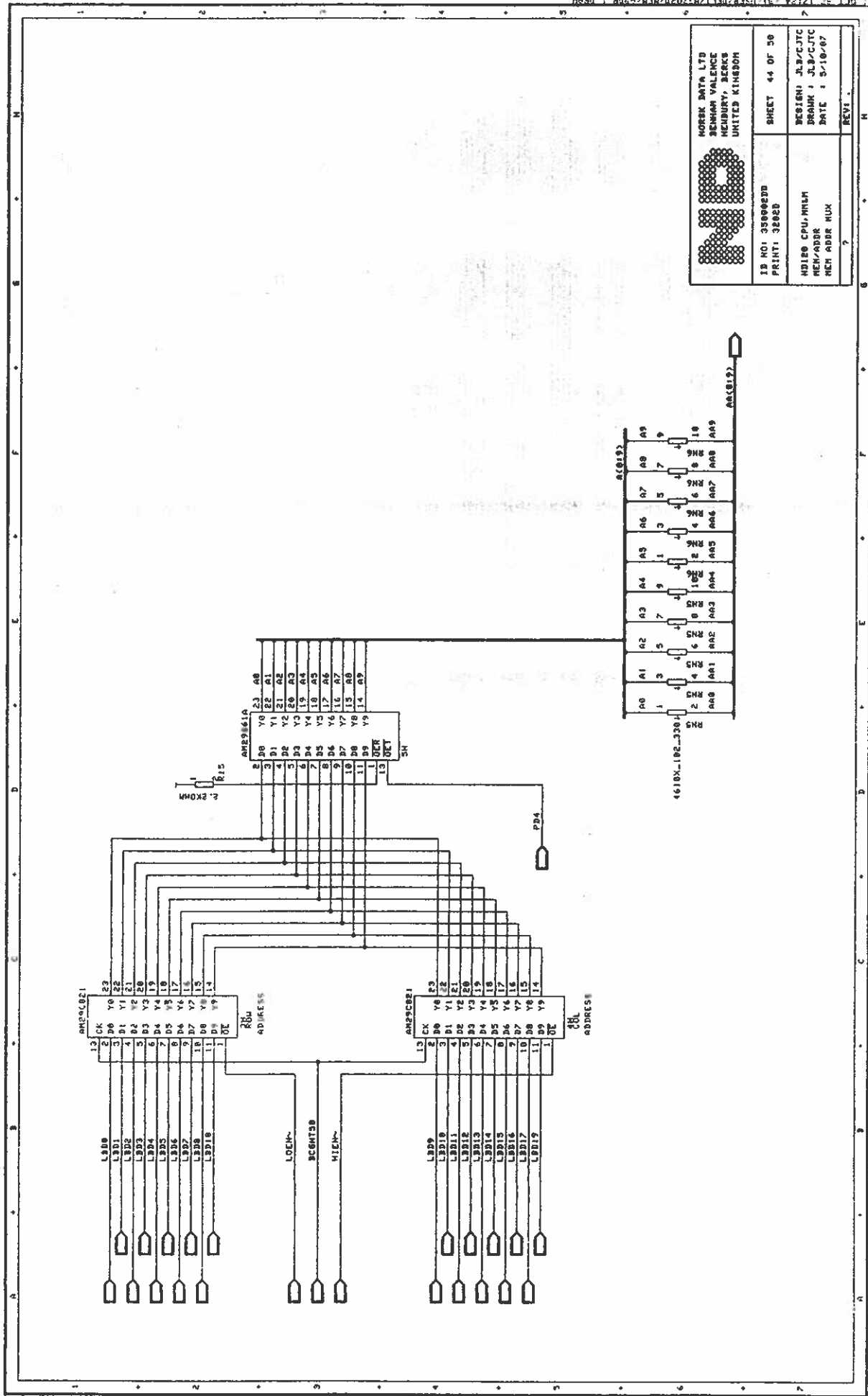
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PRINT: 32820

DESIGN: J3/CJTC
DRAWN: J3/CJTC
DATE: 5-10-07

REVI: 1

4618X-192-330

4618X-192-330



1 2 3

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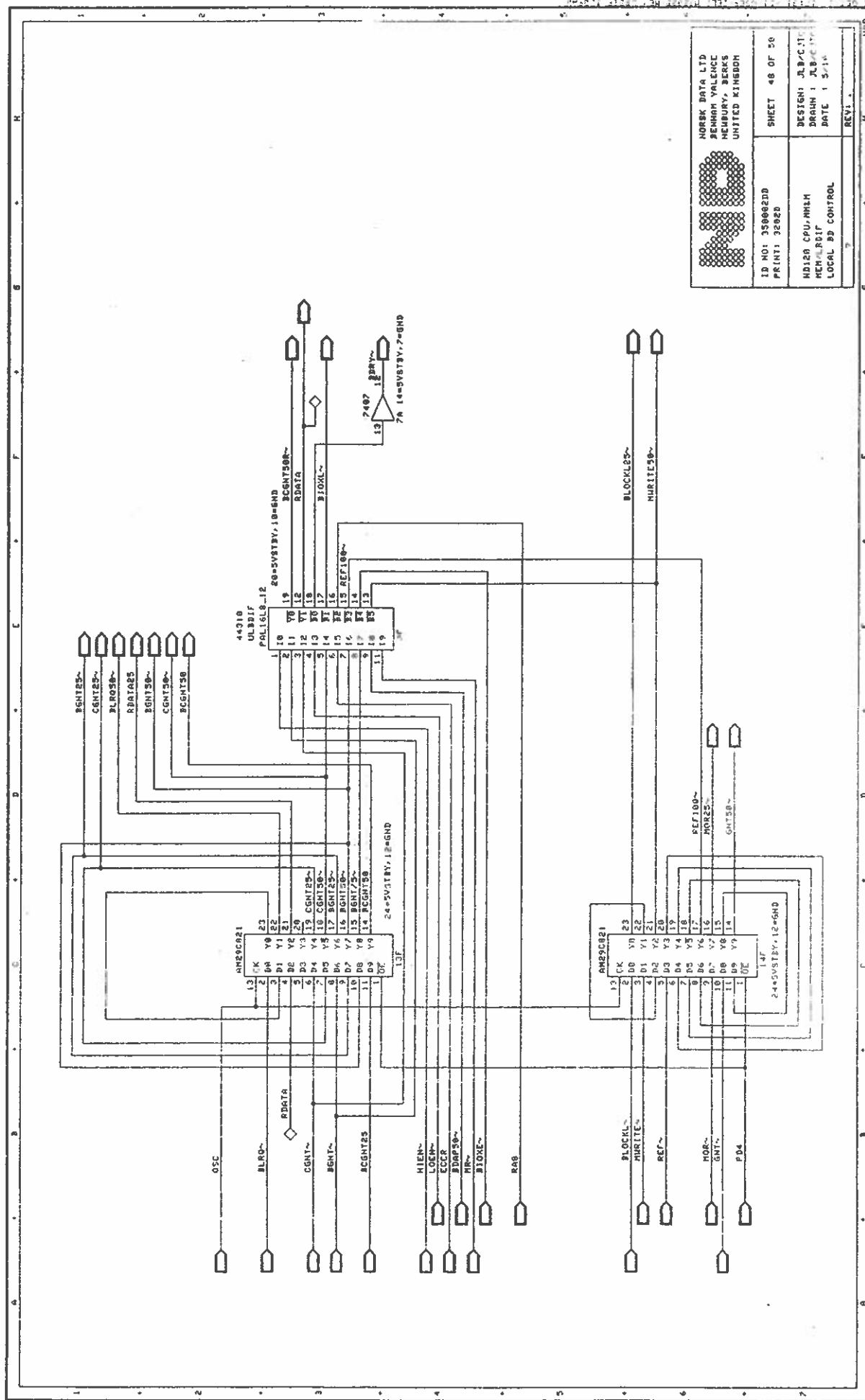
5
8 16 18 3 MS121-
9 17 18 12
11 01
65
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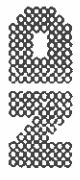
BUS A SS ECODE
& BUS LOC L REQUEST

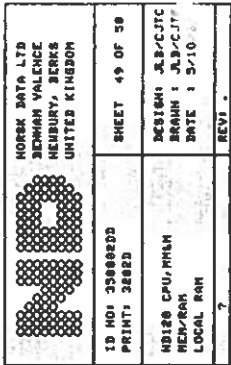
BD-20
BD-21
BD-22
BD-23
10-19

SGMT-

4



		NOREK DATA LTD BENHAM VALENCIE HENBURY, BERKS UNITED KINGDOM	
ID NO: 3580820D PRINT: 32820	SHEET 48 OF 56	DESIGN: J.B./C.J.T. DRAWN: J.B./C.J.T. DATE: 1 5/15	REV: 1
MD128 CPU/MH1H MEM 1601F LOCAL 3D CONTROL			





	ID NO: 3560623D PRINT: 2E6D	SHEET 50 OF 50	DESIGN: JLB/CJTC DRAWN: JLB/CJTC DATE: 5/10/87	NAME:
HOREK DATA LTD 35MAN VALANCE HEDMURY, BEKKS UNITED KINGDOM				
	HD10 CPU: H111 MEM: PARC LOCAL RAM CONTROL			

ND 120/cx w. 170 447 → 3267.

3024 ND 100 BUS AD Print:B ECO:F

Engelbräthen, Magnus 628061

RASH

DECODING
OF
COMMAND - CODE
AND
IDB - SOURCE

Table of content

Internal cpu control	2
External or memory requests, explanations	3,4
External or memory requests, LB-select and cycle	5,6
External or memory requests, MAC addr. selection	7,8
IDB-source selection	9
Compact table of all commands.....	10
Binary table of commands (00000,00-01111,11)	11
Binary table of commands (10000,00-11111,11)	12

I N T E R N A L C P U C O N T R O L

COMM ,MIS	MNEM.	CYCLE	EXPLANATION
00	NONE	FAST.....	DUMMY
01	LDPIL	FAST.....	LOAD UPPER BYTE OF STS (PIL,ETC.)
02	LDGPR	FAST.....	LOAD GPR
03	EWRF	FAST.....	ENABLE WRITE REGISTER-FILE (RF)
04	CLIRQ	SLOW.....	TEMPORARY INTERRUPT INHIBIT
05	RSDA	SLOW.....	RESET DATA AVAILIBLE ON UART
06,0	TBSTR	SLOW.....	UART TRANSMITT-BUFFER LOAD AND START
06,1	WRIPT	SLOW.....	WRITE IN PT AS ADDRESSED IN ACCESS
06,2	LDPANC	SLOW.....	LOAD PANEL CONTROL
06,3	LDPCR	SLOW.....	LOAD PCR
07	SIOC	SLOW.....	LOAD IOC (I/O CONTROL REGISTER)
10	SLOW	SLOW.....	MAKE SLOW CYCLE
11	EPIC	SLOW.....	ENABLE PIC (2914) INSTRUCTION
12	SMPID	FAST.....	SET MPID FROM IDB
13	START	FAST.....	START MACRO PROGRAM
14	STOP	FAST.....	STOP MACRO PROGRAM
15	CLRTC	FAST.....	CLEAR REAL-TIME INTERRUPT
16	CLFF	FAST.....	CLEAR OOD- AND DZD-FLIP-FLOPS
17	LDLC	FAST.....	LOAD LOOP-COUNTER

EXTERNAL OR MEMORY REQUEST

EXPLANATION

COMM MIS MNEM

20	0	LDSEG	LOAD SEGMENT-REGISTER OF MAC
20	1	LDDOMI	LOAD DOMAIN REGISTER OF MM
20	2	LDPS	LOAD PROCCES-REGISTER OF MM
20	3	LDIRV	LOAD IR-VALUE IN MIC (OR-LOGICS)
21	0	WCIHM	WRITE CACHE INHIBIT MAP
21	1	SSEMA	SET SEMAPHOR-FLAG (PREPARE SEMAPHOR REQUEST)
21	2	CCLR	CACHE CLEAR
21	3	LDEXM	LOAD EXAMINE-MODE IN MAC
22	0	IREAD,PT	INDIRECT READ AS PT-MODE
22	1	IREAD,APT	INDIRECT READ AS APT-MODE
22	2	MAP	ADDRESS CONTROL-STORE MAPPED AS WHEN FETCH
22	3	CNEXT,NWP	FETCH NEXT MACRO-INSTRUCTION IF NOT WRITE P-REG
23	0	CJMP,F15	MACRO JUMP IF F15=1 (NEGATIVE)
23	1	CJMP,NF15	MACRO JUMP IF F15=0 (POSITIVE)
23	2	CJMP,F=0	MACRO JUMP IF F=0 (ZERO)
23	3	CJMP,NF=0	MACRO JUMP IF F><0 (NOT ZERO)
24	0	CNEXT,SGR	MACRO NEXT IF SGR=1 (GREATER OR EQUAL)
24	1	CNEXT,NSGR	MACRO NEXT IF SGR=0 (LESS THAN)
24	2	CNEXT,CRY	MACRO NEXT IF CRY=1 (MAGNITUDE)
24	3	CNEXT,NCRY	MACRO NEXT IF CRY=0
25	0	CNEXT,F15	MACRO NEXT IF F15=1 (NEGATIVE)
25	1	CNEXT,NF15	MACRO NEXT IF F15=0 (POSITIVE)
25	2	CNEXT,F=0	MACRO NEXT IF F=0 (ZERO)
25	3	CNEXT,NF=0	MACRO NEXT IF F><0 (NOT ZERO)
26	0	JMP,*	UNCONDITIONAL MACRO JUMP (P-RELATIVE)
26	1	JMP,B	UNCONDITIONAL MACRO JUMP (B-RELATIVE)
26	2	JMP,I	UNCONDITIONAL MACRO JUMP (INDIRECT)
26	3	JMP,X	UNCONDITIONAL MACRO JUMP (X-RELATIVE)
27	0	JMP,XB	UNCONDITIONAL MACRO JUMP (POST-INDEXED, B-REL.)
27	1	JMP,XI (,B)	UNCONDITIONAL MACRO JUMP (POST-INDEXED, INDIR.)
27	2	LBCONT	PREFIX (NEXT IS WITH EXTENDED LOGICAL ADDRESS)
27	3	CONTINUE	FETCH MACRO-INSTR AS POINTED BY P-REG

EXTERNAL OR MEMORY REQUEST

EXPLANATION (CONTINUED)

COMM	MIS	MNEM	EXPLANATION

30	0	AREAD,*	READ P-RELATIVE
30	1	AREAD,B	READ B-RELATIVE
30	2	AREAD,I (,B)	READ INDIRECT
30	3	AREAD,X	READ X-RELATIVE

31	0	AREAD,XB	READ POST-INDEXED AFTER B-RELATIVE
31	1	AREAD,XI (,B)	READ POST-INDEXED AFTER INDIRECT
31	2	IREAD2	READ 2. INDIRECT ADDRESS (PREFIXED)
31	3	AREAD,NEXT	READ NEXT LOCATION

32	0	AWRITE,*	WRITE P-RELATIVE
32	1	AWRITE,B	WRITE B-RELATIVE
32	2	AWRITE,I (,B)	WRITE INDIRECT
32	3	AWRITE,X	WRITE X-RELATIVE

33	0	AWRITE,XB	WRITE POST-INDEXED AFTER B-RELATIVE
33	1	AWRITE,XI (,B)	WRITE POST-INDEXED AFTER INDIRECT
33	2	AWRITE,HOLD	WRITE IN LAST USED ADDRESS (USED BY "MIN")
33	3	AWRITE,NEXT	WRITE IN NEXT LOCATION

34	0	READ,PT	READ PT-MODE AND USE ADDRESS FROM IDB
34	1	READ,APT	READ APT-MODE AND USE ADDRESS FROM IDB
34	2	READ,HOLD	READ AS PREVIOUS AND USE ADDRESS FROM IDB
34	3	EXAMINE	EXAMINE PHYSICALLY, USE ADDRESS FROM IDB AND SEG.

35	0	WRITE,PT	WRITE PT-MODE AND USE ADDRESS FROM IDB
35	1	WRITE,APT	WRITE APT-MODE AND USE ADDRESS FROM IDB
35	2	WRITE,HOLD	WRITE AS PREVIOUS AND USE ADDRESS FROM IDB
35	3	DEPOSIT	DEPOSIT PHYSICALLY, USE ADDRESS FROM IDB AND SEG.

36	0	ADCS	ADDRESS CONTROL-STORE FROM IDB
36	1	RWCS	ACCESS CONTROL-STORE AS ADDRESSED BY ADCS
36	2	WLBR	LOAD LOGICAL BANK REGISTER (LBR)
36	3	WALBR	LOAD ALTERNATIVE LOGICAL BANK REGISTER (ALBR)

37	0	PLBR	PRESENT LBR AND ALBR ON LA(16-19) AND LA(22-25)
37	1	SPARE	
37	2	IDENT	IDENT
37	3	IOX	IOX OR IOXT

EXTERNAL OR MEMORY REQUEST

MAC ADDRESS GENERATION

COMM	MIS	MNEM	NEXT LCA	ALU-SELECT	
				P-OPR	Q
-----L-0-X-B-R---0-D-C-----					
20	0	LDSEG	0 +CD	. X . . .	. . X
20	1	LDDOMI	0 +CD	. X . . .	. . X
20	2	LDPS	0 +CD	. X . . .	. . X
20	3	NOT ASSIGNED	0 +CD	. X . . .	. . X
-----L-0-X-B-R---0-D-C-----					
21	0	WCIHM	0 +CD	. X . . .	. . X
21	1	SSEMA	0 +CD	. X . . .	. . X
21	2	CCLR	0 +CD	. X . . .	. . X
21	3	LDEXM	0 +CD	. X . . .	. . X
-----L-0-X-B-R---0-D-C-----					
22	0	IREAD,PT	LCA+DISP	X	. X .
22	1	IREAD,APT	B +DISP	. . X . .	. X .
22	2	MAP	0 +CD	. X . . .	. . X
22	3	CNEXT,NWP	P +0	. X . . .	X . .
-----L-0-X-B-R---0-D-C-----					
23	0	CJMP,F15	LCA+DISP	X	. X .
23	1	CJMP,NF15	LCA+DISP	X	. X .
23	2	CJMP,F=0	LCA+DISP	X	. X .
23	3	CJMP,NF=0	LCA+DISP	X	. X .
-----L-0-X-B-R---0-D-C-----					
24	0	CNEXT,SGR	LCA+1	X	X . .
24	1	CNEXT,NSGR	LCA+1	X	X . .
24	2	CNEXT,CRY	LCA+1	X	X . .
24	3	CNEXT,NCRY	LCA+1	X	X . .
-----L-0-X-B-R---0-D-C-----					
25	0	CNEXT,F15	LCA+1	X	X . .
25	1	CNEXT,NF15	LCA+1	X	X . .
25	2	CNEXT,F=0	LCA+1	X	X . .
25	3	CNEXT,NF=0	LCA+1	X	X . .
-----L-0-X-B-R---0-D-C-----					
26	0	JMP,*	LCA+DISP	X	. X .
26	1	JMP,B	B +DISP	. . . X .	. X .
26	2	JMP,I	0 +CD	. X . . .	. . X
26	3	JMP,X	X +DISP	. . X . .	. X .
-----L-0-X-B-R---0-D-C-----					
27	0	JMP,XB	RB +DISP	 X	. X .
27	1	JMP,XI (,B)	X +CD	. . X . .	. X .
27	2	LBCONT	P +0	. X . . .	X . .
27	3	CONTINUE	P +0	. X . . .	X . .
-----L-0-X-B-R---0-D-C-----					

EXTERNAL OR MEMORY REQUEST

MAC ADDRESS GENERATION (CONTINUED)

COMM	MIS	MNEM	NEXT LCA	PRE-SELECT	
				P-OPR	Q
-----L-0-X-B-R--0-0-C-----					
30	0	AREAD,*	LCA+DISP	X	. X .
30	1	AREAD,B	B +DISP	. . . X .	. X .
30	2	AREAD,I (,B)	0 +CD	. X . . .	. . X
30	3	AREAD,X	X +DISP	. . X . .	. X .
-----L-0-X-B-R--0-D-C-----					
31	0	AREAD,XB	RB +DISP	 X	. X .
31	1	AREAD,XI (,B)	X +CD	. . X . .	. . C
31	2	IREAD2	LCA+1	X	X . .
31	3	AREAD,NEXT	LCA+1	X	X . .
-----L-0-X-B-R--0-0-C-----					
32	0	AWRITE,*	LCA+DISP	X	. X .
32	1	AWRITE,B	B +DISP	. . . X .	. X .
32	2	AWRITE,I (,B)	0 +CD	. X . . .	. . X
32	3	AWRITE,X	X +DISP	. . X . .	. X .
-----L-0-X-B-R--0-D-C-----					
33	0	AWRITE,XB	RB +DISP	 X	. X .
33	1	AWRITE,XI (,B)	X +CD	. . X . .	. . C
33	2	AWRITE,HOLD	LCA+0	X	X . .
33	3	AWRITE,NEXT	LCA+1	X	X . .
-----L-0-X-B-R--0-0-C-----					
34	0	READ,PT	0 +CD	. X . . .	. . X
34	1	READ,APT	0 +CD	. X . . .	. . X
34	2	READ,HOLD	0 +CD	. X . . .	. . X
34	3	EXAMINE	0 +CD	. X . . .	. . X
-----L-0-X-B-R--0-0-C-----					
35	0	WRITE,PT	0 +CD	. X . . .	. . X
35	1	WRITE,APT	0 +CD	. X . . .	. . X
35	2	WRITE,HOLD	0 +CD	. X . . .	. . X
35	3	DEPOSIT	0 +CD	. X . . .	. . X
-----L-0-X-B-R--0-0-C-----					
36	0	ADCS	0 +CD	. X . . .	. . X
36	1	RWCS	0 +CD	. X . . .	. . X
36	2	WLBR	0 +CD	. X . . .	. . X
36	3	WALBR	0 +CD	. X . . .	. . X
-----L-0-X-B-R--0-0-C-----					
37	0	PLBR	0 +CD	. X . . .	. . X
37	1	SPARE	0 +CD	. X . . .	. . X
37	2	IDENT	0 +CD	. X . . .	. . X
37	3	IOX	0 +CD	. X . . .	. . X
-----L-0-X-B-R--0-0-C-----					

I D B - S O U R C E S E L E C T I O N

IDBS (0-4)	IDBS, (MNEM.)	EXPLANATION	COMMENTS
0	ALU	ALUF OR A-OPR	LOCAL ALU
1	BMG	BIT-MASK-GENERATOR	LOCAL ALU
2	GPR	GENERAL PURPOSE REGISTER	LOCAL ALU
3	DBR	DB/CACHE READ REGISTER	LOCAL ALU
4	ARG	MICRO ARGUMENT REGISTER	LOCAL ALU
5	REG	REGISTER-FILE	
6	STS	MACRO STATUS REGISTER	LOCAL ALU
7	N.A.		(OLD MMR)
10	BARG	B-OPR. AS ARGUMENT(0-3)	LOCAL ALU
11	SWAP	BYTE SWAP REGISTER	LOCAL ALU
12	PEA	PARITY ERROR ADDRESS	
13	PES	PARITY ERROR STATUS&ADDR	
14	AARG	A-OPR. AS ARGUMENT(3-6)	LOCAL ALU
15	PICS	PIC STATUS	2914
16	IOR	I/O REGISTER FROM UART ETC	
17	NONE	DUMMY	
20	MIPANS	PANEL STATUS	IR=40
21	MAPANS	PANEL STATUS, RESET BIT 12	IR=0
22	GPR,SEXT	GPR, SIGN EXTENDED	LOCAL ALU
23	PGS	PAGING STATUS EXTENDED	MAC VIA CD
24	CSR	CACHE STATUS REGISTER	
25	PCR	PAGING CONTROL REGISTER	IR=14
26	ALD	ALD AND PRINT-STATUS	
27	PANEL	PANEL-INTERRUPT-VECTOR	
30	RCS	CONTROL-STORE WORD	
31	PICV	PIC-INTERRUPT-VECTOR	2914
32	LBR	READ LA(16-19,22-25) TO IDB(0-3,8-11)	
33	PTC	READ PT-CONTENT	
34	JMPA	LA(15-10),CA(9-0) FOR UPDATING P IN ALU.	
35	RINR	READ INSTALLATION NUMBER	
36	N.A.		
37	N.A.		

Compact table of all commands

00,0 NONE	10,0 SLOW	20,0 LDSEG	30,0 AREAD,*
00,1 NONE	10,1 SLOW	20,1 LDDOMI	30,1 AREAD,B
00,2 NONE	10,2 SLOW	20,2 LDPS	30,2 AREAD,I/,B
00,3 NONE	10,3 SLOW	20,3 LOIRV	30,3 AREAD,X
01,0 LDPIL	11,0 EPIC	21,0 WCIHM	31,0 AREAD,XB
01,1 LDPIL	11,1 EPIC	21,1 SSEMA	31,1 AREAD,XI/,B
01,2 LDPIL	11,2 EPIC	21,2 CCLR	31,2 IREAD2
01,3 LDPIL	11,3 EPIC	21,3 LDEXM	31,3 AREAD,NEXT
02,0 LDGPR	12,0 SMPID	22,0 IREAD,PT	32,0 AWRITE,*
02,1 LDGPR	12,1 SMPID	22,1 IREAD,APT	32,1 AWRITE,B
02,2 LDGPR	12,2 SMPID	22,2 MAP	32,2 AWRITE,I/,B
02,3 LDGPR	12,3 SMPID	22,3 CNEXT,NWP	32,3 AWRITE,X
03,0 EWRF	13,0 START	23,0 CJMP,F15	33,0 AWRITE,XB
03,1 EWRF	13,1 START	23,1 CJMP,NF15	33,1 AWRITE,XI/,B
03,2 EWRF	13,2 START	23,2 CJMP,F=0	33,2 AWRITE,HOLD
03,3 EWRF	13,3 START	23,3 CJMP,NF=0	33,3 AWRITE,NEXT
04,0 CLIRQ	14,0 STOP	24,0 CNEXT,SGR	34,0 READ,PT
04,1 CLIRQ	14,1 STOP	24,1 CNEXT,NSGR	34,1 READ,APT
04,2 CLIRQ	14,2 STOP	24,2 CNEXT,CRY	34,2 READ,HOLD
04,3 CLIRQ	14,3 STOP	24,3 CNEXT,NCRY	34,3 EXAMINE
05,0 RSDA	15,0 CLRTC	25,0 CNEXT,F15	35,0 WRITE,PT
05,1 RSDA	15,1 CLRTC	25,1 CNEXT,NF15	35,1 WRITE,APT
05,2 RSDA	15,2 CLRTC	25,2 CNEXT,F=0	35,2 WRITE,HOLD
05,3 RSDA	15,3 CLRTC	25,3 CNEXT,NF=0	35,3 DEPOSIT
06,0 TBSTR	16,0 CLFF	26,0 JMP,*	36,0 ADCS
06,1 WRIPT	16,1 CLFF	26,1 JMP,B	36,1 RWCS
06,2 LDPANC	16,2 CLFF	26,2 JMP,I	36,2 WLBR
06,3 LDPCR	16,3 CLFF	26,3 JMP,X	36,3 WALBR
07,0 SIOC	17,0 LDLC	27,0 JMP,XB	37,0 PLBR
07,1 SIOC	17,1 LDLC	27,1 JMP,XI/,B	37,1 SPARE
07,2 SIOC	17,2 LDLC	27,2 LBCONT	37,2 IDENT
07,3 SIOC	17,3 LDLC	27,3 CONTINUE	37,3 IOX

BINARY TABLE 00000,00 THROUGH 01111,11

00000 00	NONE	01000 00	SLOW
00000 01	NONE	01000 01	SLOW
00000 10	NONE	01000 10	SLOW
00000 11	NONE	01000 11	SLOW
00001 00	LDPIIL	01001 00	EPIC
00001 01	LDPIIL	01001 01	EPIC
00001 10	LDPIIL	01001 10	EPIC
00001 11	LDPIIL	01001 11	EPIC
00010 00	LDGPR	01010 00	SMPID
00010 01	LDGPR	01010 01	SMPID
00010 10	LDGPR	01010 10	SMPID
00010 11	LDGPR	01010 11	SMPID
00011 00	EWRP	01011 00	START
00011 01	EWRP	01011 01	START
00011 10	EWRP	01011 10	START
00011 11	EWRP	01011 11	START
00100 00	CLIRQ	01100 00	STOP
00100 01	CLIRQ	01100 01	STOP
00100 10	CLIRQ	01100 10	STOP
00100 11	CLIRQ	01100 11	STOP
00101 00	RSDA	01101 00	CLRTC
00101 01	RSDA	01101 01	CLRTC
00101 10	RSDA	01101 10	CLRTC
00101 11	RSDA	01101 11	CLRTC
00110 00	TBSTR	01110 00	CLFF
00110 01	WRIPT	01110 01	CLFF
00110 10	LDPANC	01110 10	CLFF
00110 11	LDPCR	01110 11	CLFF
00111 00	SIOC	01111 00	LDLC
00111 01	SIOC	01111 01	LDLC
00111 10	SIOC	01111 10	LDLC
00111 11	SIOC	01111 11	LDLC

BINARY TABLE 10000.00 THROUGH 11111.11

10000 00	LDSEG	11000 00	AREAD,*
10000 01	LDDOMI	11000 01	AREAD,B
10000 10	LDPS	11000 10	AREAD,I/,B
10000 11	LDIRV	11000 11	AREAD,X
10001 00	WCIHM	11001 00	AREAD,XB
10001 01	SSEMA	11001 01	AREAD,XI/,B
10001 10	CCLR	11001 10	IREAD2
10001 11	LDEXM	11001 11	AREAD,NEXT
10010 00	IREAD,PT	11010 00	AWRITE,*
10010 01	IREAD,APT	11010 01	AWRITE,B
10010 10	MAP	11010 10	AWRITE,I/,B
10010 11	CNEXT,NWP	11010 11	AWRITE,X
10011 00	CJMP,F15	11011 00	AWRITE,XB
10011 01	CJMP,NF15	11011 01	AWRITE,XI/,B
10011 10	CJMP,F=0	11011 10	AWRITE,HOLD
10011 11	CJMP,NF=0	11011 11	AWRITE,NEXT
10100 00	CNEXT,SGR	11100 00	READ,PT
10100 01	CNEXT,NSGR	11100 01	READ,APT
10100 10	CNEXT,CRY	11100 10	READ,HOLD
10100 11	CNEXT,NCRY	11100 11	EXAMINE
10101 00	CNEXT,F15	11101 00	WRITE,PT
10101 01	CNEXT,NF15	11101 01	WRITE,APT
10101 10	CNEXT,F=0	11101 10	WRITE,HOLD
10101 11	CNEXT,NF=0	11101 11	DEPOSIT
10110 00	JMP,*	11110 00	ADCS
10110 01	JMP,B	11110 01	RWCS
10110 10	JMP,I	11110 10	WLBR
10110 11	JMP,X	11110 11	WALBR
10111 00	JMP,XB	11111 00	PLBR
10111 01	JMP,XI/,B	11111 01	SPARE
10111 10	LBCONT	11111 10	IDENT
10111 11	CONTINUE	11111 11	IOX