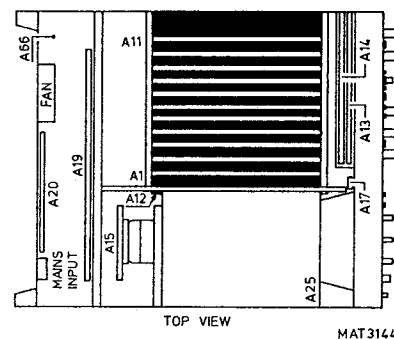


UNIT A12 - MOTHERBOARDCONTENTS

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8.12.1 General information

The function of the motherboard unit is to interconnect the various plug-in units with each other as well as with the rest of the system.

8.12.2 Detailed information

No active components are mounted on this board.

Each plug-in unit is provided with one or two (three row) 96-pole EURO-connectors. One connector is used for the primary or CCU (Central Control Unit) - bus. The other connector is used for the so-called secondary - bus.

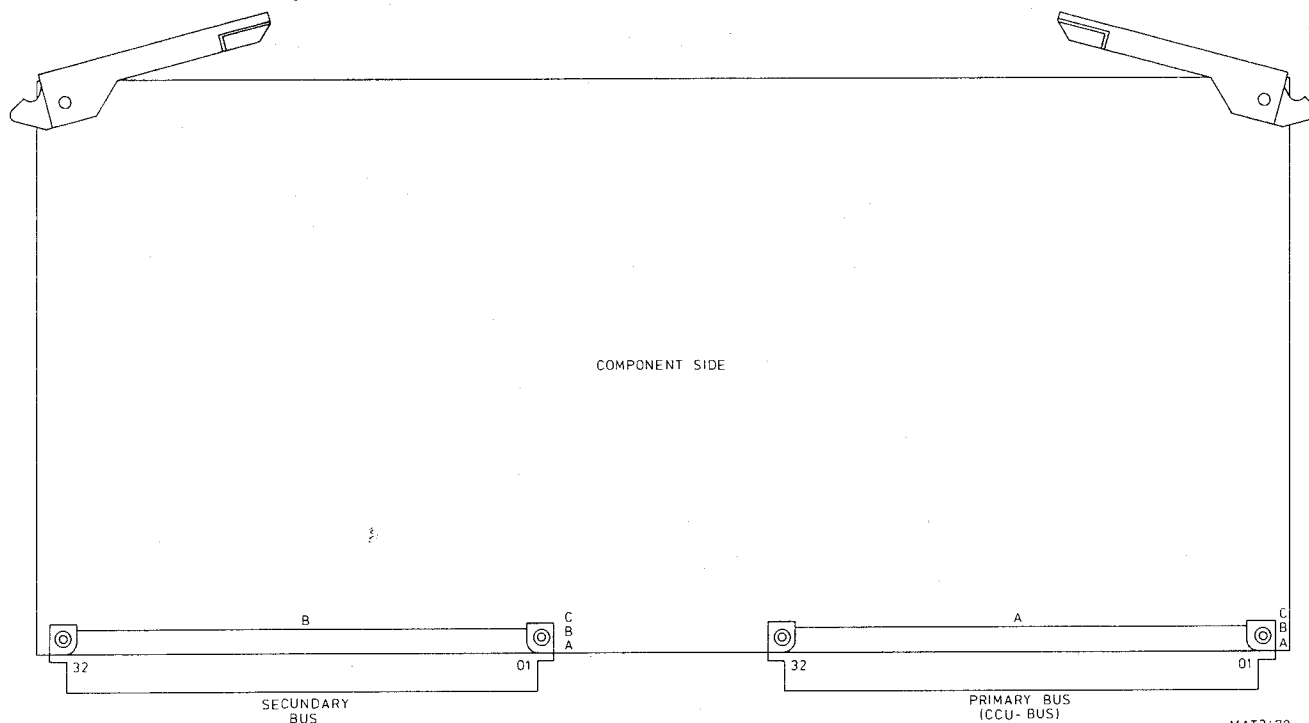


Figure 8.12.1 EURO-connectors.

8.12.3 Primary bus (CCU-bus)

This is a description of the pin lay out for the connectors of the CCU-bus on the motherboard.

MOTHERBOARD A12 -----> UNIT
 X504 -----> A2 - X2301
 X507 -----> A3 - X2101
 X509 -----> A4 - X2002
 X512 -----> A5 - X1801
 X513 -----> A6 - X1701
 X516 -----> A7 - X701
 X518 -----> A8 - X1401
 X521 -----> A9 - X1201
 X523 -----> A10- X....

ROW A		ROW B		ROW C	
1	+5 D	1	+5 D	1	+5 D
2	UPCK08	2	D	2	UPCK16
3	D	3	D	3	D
4	-	4	MYSL01LT * R506/2	4	-
5	MYSLDWLT	5	MYSL02LT * R506/3	5	-
6	VBB	6	MYSL03LT * R506/4	6	-
7	BAV0	7	MYSL04LT * R506/5	7	UPRSOTLT
8	AB01 * R502/2	8	AB08 * R506/6	8	DATRAKLT
9	AB02 * R502/3	9	AB09 * R506/7	9	DALOSBLT * R508/2
10	AB03 * R502/4	10	AB10 * R506/8	10	DB00 * R508/3
11	AB04 * R502/5	11	AB11 * R506/9	11	DB01 * R508/4
12	AB05 * R503/2	12	AB12 * R502/6	12	DB02 * R508/5
13	AB06 * R503/4	13	AB13 * R503/3	13	DB03 * R508/6
14	AB07 * R502/7	14	AB14 * R502/8	14	DB04 * R508/7
15	IOSL03LT * R503/5	15	AB15 * R502/9	15	DB05 * R508/8
16	IOSL04LT * R501/2	16	AB16 * R503/9	16	DB06 * R508/9
17	IOSL05LT * R501/4	17	AB17 * R501/3	17	DB07 * R503/6
18	IOSL06LT * R504/3	18	AB18 * R504/2	18	DB08 * R503/7
19	IOSL07LT * R504/4	19	AB19 * R501/5	19	DB09 * R503/8
20	IOSL08LT * R504/6	20	AB20 * R504/5	20	DB10 * R507/2
21	IOSL09LT * R501/6	21	AB21 * R504/7	21	DB11 * R507/3
22	IOSL10LT * R501/7	22	- * R504/8	22	DB12 * R507/4
23	IL01--LT	23	-	23	DB13 * R507/5
24	IL02--LT	24	-	24	DB14 * R507/6
25	IL03--LT	25	-	25	DB15 * R507/7
26	IL04--LT	26	- * R504/9	26	DAHISBLT * R507/8
27	IL05--LT	27	- * R501/8	27	UPRD--LT * R507/9
28	IL06--LT	28	WD----LT	28	UPWR--LT * R501/9
29	IL07--LT	29	-	29	Z-MO--XT
30	A	30	A	30	A
31	-7 V	31	-7 V	31	-7 V
32	+7 V	32	+7 V	32	+7 V

* TERMINATED WITH R.../PINNUMBER

8.12.4 Description of the CCU-bus signals

a1, b1 and c1	: 5 V digital
a3, b2, b3 and c3	: Ground of the digital 5 V
a30, b30 and c30	: Analog earth
a31, b31 and c31	: Analog -7 V
a32, b32 and c32	: Analog 7 V
a2	: 8MHz processor clock
a5	: Memory select down. This line indicates that the chip select of the RAM's must be disabled on battery back up.
a6	: Voltage for the battery back up RAM's
a7	: Battery voltage
a8 ... a14	: Lowest 7 address lines
a15 ... a22	: I/O select lines for the selection of the input/output ports
a23 ... a29	: Interrupt level lines. The sequence is as follows:
	IL01--LT --> 40 ms interrupt
	IL02--LT --> DPU interrupt
	IL03--LT --> rotary interrupt
	IL04--LT --> option interrupt
	IL05--LT --> display interrupt
	IL06--LT --> not used
	IL07--LT --> power down interrupt
	↑ increasing priority
b4	: Memory select for the microprocessor RAM
b5	: Memory select for the display memory
b6	: Memory select for the DPU programm memory
b7	: Memory select for the options
b8 ... b21	: Address lines 8 ... 21
b22	: Not used
b23	: Not used
b24	: Not used
b26	: Not used
b27	: Not used
b28	: Watch dog trigger line. Masters can trigger the watchdog via this line.
c2	: 16 MHz clock from the microprocessor unit.
c7	: Microprocessor reset output.
c8	: Data transfer acknowledge. This is an open collector line on which units, which are addressed via MYSL01 ... MYSL04, can indicate that the data on the data bus is accepted or stable.
C9	: Data lower strobe. With this line active, the lowest 8 data bus lines can be used for read or write actions.
c10 ... c25	: Databus
c27	: Data higher strobe. With this line active, the highest 8 data bus lines can be used for read or write actions.
c28	: Microprocessor read.
c29	: Microprocessor write.
c30	: Z modulation frequency of 200 kHz.

8.12-4

8.12.5 Secondary bus

MOTHERBOARD A12 ----> UNIT A1
X502 -----> X2501

ROW A

1 -
2 -
3 -
4 -
5 -
6 +5D
7 -
8 -7V
9 -
10 +7V
11 A
12 100V
13 A
14 40V
15 A
16 +19V
17 A
18 -19V
19 A
20 +14V
21 A
22 -14V
23 -
24 -
25 -
26 -
27 -
28 -
29 -
30 -
31 -
32 -

ROW B

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

ROW C

1 Z-MO--XT
2 ANCPY-HT
3 ANEPY-HT
4 DPTR--HT
5 DIOS--HT
6 Z-BL--HT
7 A
8 VREPX2
9 VREPX1
10 A
11 X2IN
12 X1IN
13 A
14 Y2IN
15 Y1IN
16 A
17 -
18 -
19 -
20 -
21 -
22 -
23 -
24 -
25 A
26 A
27 -
28 -
29 SAPL
30 PLZEOT
31 PFPY
32 PU----LT

MOTHERBOARD A12 ---> UNIT A2
 X503 -----> X2302

ROW A	ROW B	ROW C
1 LEDA--HT	1	1 LEDA--LT
2 WRHOPOLT	2	2 VEDB09
3 WRVEPOLT	3	3 VEDB10
4 -	4	4 VEDB11
5 DPTR--HT	5	5 VEDB12
6 DIOS--HT	6	6 EPY-00
7 ENTRHOLT	7	7 EPY-01
8 EPX-00	8	8 IVDCDB
9 EPX-01	9	9 ENTXLNLT
10 DCDB02	10	10 EPDB00
11 DCDB00	11	11 EPDB01
12 DCDB05	12	12 EPDB02
13 DCDB04	13	13 EPDB03
14 DCDB03	14	14 EPDB04
15 DCDB07	15	15 EPDB05
16 DCDB01	16	16 EPDB06
17 DCDB08	17	17 EPDB07
18 EP12--LT	18	18 EPDB08
19 EPH014	19	19 EPDB09
20 VREPX2	20	20 EPDB10
21 VREPX1	21	21 EPDB11
22 EPX-02	22	22 CKEPVE
23 -	23	23 DCDB09
24 Z-OT03	24	24 DPRJ
25 DCDB06	25	25 -
26 X2IN	26	26 WRHOVRLT
27 X1IN	27	27 DJAC--HT
28 Y2IN	28	28 DPRJDW
29 Y1IN	29	29 SM----LT
30 -7 V	30	30 +7 V
31 -14 V	31	31 +14 V
32 -19 V	32	32 A

MOTHERBOARD A12 ----> UNIT A3
 X506 -----> X2102

ROW A

1 OETX--LT
 2 RDDM--LT
 3 LEDA--HT
 4 LEDA--LT
 5 VEDB09
 6 VEDB10
 7 VEDB11
 8 VEDB12
 9 EPY-00
 10 EPY-01
 11 1VDCDB
 12 ENTXLNLT
 13 EPDB00
 14 EPDB01
 15 EPDB02
 16 EPDB03
 17 EPDB04
 18 EPDB05
 19 EPDB06
 20 EPDB07
 21 EPDB08
 22 EPDB09
 23 EPDB10
 24 EPDB11
 25 CKEPVE
 26 DCDB09
 27 DPRJUPLT
 28 -
 29 DJAC--HT
 30 SM----LT
 31 SAPL
 32 PFPY

ROW B

1 CSTX--LT
 2 DITXTR
 3 DRTXTR
 4 DPAB09
 5 WRHOPOLT
 6 WRVEPOLT
 7 ANCPY-HT
 8 ANEPY-HT
 9 DPTR--HT
 10 DIOS--HT
 11 ENTRHOLT
 12 EPX00
 13 EPX01
 14 Z-BL-HT
 15 DPAB05
 16 DAAK--HT
 17 WETR01LT
 18 OETR01LT
 19 TRAB13
 20 DIDBTX
 21 DISVLA
 22 EP12--LT
 23 EPH014
 24 EPX-02
 25 DCDB11
 26 -
 27 Z-OT03
 28 WRHOVRLT
 29 DPRJDWLT
 30 SLTRIHLT
 31 PLZEOT
 32 PU----LT

ROW C

1 WETX--LT
 2 DAAK--LT
 3 DPAB11
 4 TXAB13
 5 DAPB08
 6 DPAB10
 7 OETR02LT
 8 WETR02LT
 9 DPAB00
 10 DPAB03
 11 DPAB02
 12 DPAB01
 13 CLUPAB
 14 DPAB07
 15 DPAB06
 16 DPAB04
 17 CPAB00 n.u.
 18 MXCPAD
 19 CKSVLA
 20 CLDPAB
 21 LEDC
 22 DCDB15
 23 SARYAKLT
 24 DCDB14
 25 DCDB13
 26 DCDB12
 27 SARY
 28 DCDB10
 29 SLTR2LLT
 30 SLTR2HLT
 31 SLTR1LLT
 32 SYDP

MOTHERBOARD A12 ----> UNIT A4
 X508 -----> X2001

ROW A	ROW B	ROW C
1 WETX--LT	1 CSTX--LT	1 OETX--LT
2 DAAK--LT	2 DITXTR	2 RDDM--LT
3 DPAB11	3 DRTXTR	3 TXAB13
4 DPAB08	4 DPAB09	4 DPAB10
5 OETR02LT	5 WETR02LT	5 SADB07
6 SADB06	6 DPAB03	6 SADB05
7 SADB03	7 DPAB02	7 SADB04
8 SADB01	8 DPAB01	8 SADB00
9 DPAB00	9 CLUPAB	9 SADB00
10 SADB09	10 DPAB07	10 OFDP
11 DPAB06	11 DPAB05	11 SADB08
12 DPAB04	12 DAAK--HT	12 TCCPCN
13 CPAB00 n.u.	13 WETR01LT	13 OETR01LT
14 MXCPAD	14 TRAB13	14 RLDP
15 RSDU--LT	15 CKSVLA	15 CNCPCN
16 DIDBTX	16 CLDPAB	16 DUAB08
17 DUAB09	17 DISVLA	17 DUAB11
18 DCDB00	18 DCDB02	18 DUAB10
19 DCDB04	19 DCDB05	19 LEDC
20 DCDB07	20 DCDB03	20 DUAB00
21 DCDB01	21 DUAB02	21 DUAB01
22 DCDB08	22 DUAB04	22 DUAB03
23 DUAB06	23 SADB13	23 DUAB05
24 SADB12	24 SADB15	24 DUAB07
25 SADB14	25 SARYAKLT	25 DCDB15
26 DCDB13	26 DCDB14	26 DCDB09
27 DCDB11	27 DCDB06	27 DCDB12
28 DCDB10	28 SARY	28 ENCPFA
29 SLTR2LLT	29 OTCM	29 DAVA
30 SLTR2HLT	30 SLTR1HLT	30 DIDCLA n.u.
31 -	31 SLTR1LLT	31 LEDP
32 -	32 -	32 -

MOTHERBOARD A12 ----> UNIT A5
 X511 -----> X1802

ROW A	ROW B	ROW C
1 SADB07	1	1 SADB05
2 SADB04	2	2 SADB06
3 SADB08	3	3 SECK1
4 TKSA	4	4 SADB11
5 -	5	5 SADB07
6 SADB06	6	6 SADB05
7 SADB03	7	7 SADB04
8 SADB01	8	8 SADB02
9 OFDP	9	9 SADB00
10 SADB09	10	10 SADB10
11 SADB08	11	11 -
12 SADB03	12	12 CHPT
13 SADB09	13	13 SADB11
14 RLDP	14	14 UPRSOTLT
15 SADB02	15	15 STCV
16 SADB10	16	16 LEACL
17 SADB01	17	17 SEDA1
18 -	18	18 STSAGTLT
19 SADB00	19	19 -
20 FBRY	20	20 SHIELD
21 -	21	21 TRRY
22 CHSW	22	22 CNSTCNLT
23 CHPT	23	23 -
24 IL02--LT	24	24 RSSTCNLT
25 -	25	25 -
26 -	26	26 -
27 -14V	27	27 D
28 A	28	28 -
29 +14V	29	29 DAVA
30 +19V	30	30 -
31 A	31	31 LEDP
32 -19V	32	32 FBRY

MOTHERBOARD A12 ---> UNIT A7
 X514 -----> X....

ROW A	ROW B	ROW C
1 TKSA	1	1 TKSA
2 -	2	2 -
3 SADBØ6	3	3 SADBØ6
4 -	4	4 -
5 -	5	5 -
6 -	6	6 -
7 -	7	7 -
8 -	8	8 -
9 -	9	9 -
10 -	10	10 -
11 MMPT	11	11 MMPT
12 -	12	12 -
13 TCCPCN	13	13 TCCPCN
14 -	14	14 -
15 CNCPCN	15	15 CNCPCN
16 RSDU--LT	16	16 RSDU--LT
17 -	17	17 -
18 -	18	18 -
19 -	19	19 -
20 -	20	20 -
21 TRRY	21	21 TRRY
22 -	22	22 -
23 -	23	23 -
24 -	24	24 -
25 -	25	25 -
26 D	26	26 -
27 D	27	27 -
28 -	28	28 -
29 -19 V	29	29 +19 V
30 -	30	30 -
31 LEDP	31	31 LEDP
32 -	32	32 A

MOTHERBOARD A12 ---> UNIT A8
 X517 -----> X1402

ROW A

1 TKSA
 2 -
 3 -
 4 -
 5 -
 6 -
 7 -
 8 -
 9 OFDP
 10 -
 11 MMPT
 12 CHPT
 13 TCCPCN
 14 RLDP
 15 CNCPCN
 16 RSDU--LT
 17 DUAB09
 18 ENOFD
 19 -
 20 TRRY
 21 DUAB02
 22 DUAB04
 23 DUAB06
 24 CYOT
 25 LEDUR2
 26 CKDUR3
 27 CSDURM
 28 SLAM
 29 OEDU00
 30 OTCM
 31 OEDU01
 32 SYDP

ROW B

1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32

ROW C

1 -
 2 EC
 3 CKDUR1
 4 CDRSMO
 5 -
 6 -
 7 -
 8 -
 9 -
 10 -
 11 SFSR01
 12 SFSR00
 13 CO
 14 OTLD
 15 STRLF
 16 DUAB08
 17 DUAB11
 18 DUAB10
 19 RSDUR-LT
 20 DUAB00
 21 DUAB01
 22 DUAB03
 23 DUAB05
 24 DUAB07
 25 CKF
 26 RDDURM
 27 SLOFAD
 28 ENCPSA
 29 OTDIAD
 30 DAVA
 31 LEDP
 32 FBRY

MOTHERBOARD A12 ---> UNIT A9
 X519 -----> X1202

ROW A	ROW B	ROW C
1 -	1	1 -
2 -	2	2 -
3 -	3	3 -
4 -	4	4 -
5 CKDUR1	5	5 SADBØ7
6 SADBØ6	6	6 SADBØ5
7 SADBØ3	7	7 SADBØ4
8 SADBØ1	8	8 SADBØ2
9 OFDP	9	9 SADBØØ
10 SADBØ9	10	10 SADB1Ø
11 SFSRØ1	11	11 SADBØ8
12 SFSRØØ	12	12 -
13 CO	13	13 SADB11
14 OTLD	14	14 RLDP
15 -	15	15 STRLF
16 -	16	16 DUABØ8
17 DUABØ9	17	17 DUAB11
18 ENOFD	18	18 DUAB1Ø
19 RSDUR-LT	19	19 -
20 -	20	20 DUABØØ
21 DUABØ2	21	21 DUABØ1
22 DUABØ4	22	22 DUABØ3
23 DUABØ6	23	23 DUABØ5
24 CYOT	24	24 DUABØ7
25 CKDUR2LT	25	25 CFK
26 CKDUR3	26	26 RDDURM
27 CSDURM	27	27 SLOFAD
28 SLAM	28	28 -
29 OEDUØØ	29	29 OTDIAD
30 -	30	30 -
31 OEDUØ1	31	31 LEDP
32 FBRY	32	32 OFAD

MOTHERBOARD A12 ---> UNIT A10
 X522 -----> X....

ROW A	ROW B	ROW C
1 -	1	1 -
2 -	2	2 -
3 -	3	3 -
4 -	4	4 -
5 EC	5	5 SADB07
6 SADB06	6	6 SADB05
7 SADB03	7	7 SADB04
8 SADB01	8	8 SADB02
9 OFDP	9	9 SADB00
10 SADB09	10	10 SADB10
11 -	11	11 -
12 -	12	12 -
13 -	13	13 SADB11
14 RLDP	14	14 D
15 -	15	15 -
16 -	16	16 D
17 -	17	17 -
18 -	18	18 -
19 -	19	19 -
20 -	20	20 -
21 -	21	21 -
22 -	22	22 -
23 -	23	23 -
24 -	24	24 -
25 +7 V	25	25 -
26 -7 V	26	26 -
27 -14 V	27	27 -
28 A	28	28 CKADOT
29 +14 V	29	29 OTDIAD
30 +19 V	30	30 LEDP
31 A	31	31 FBRY
32 -19 V	32	32 OFAD

MOTHERBOARD A12 ---> UNIT A11
 X524 -----> X607

ROW A	ROW B	ROW C
1 -	1	1 -
2 -	2	2 -
3 -	3	3 -
4 -	4	4 CDRSMO
5 EC	5	5 SADBØ7
6 SADBØ6	6	6 SADBØ5
7 SADBØ3	7	7 SADBØ4
8 SADBØ1	8	8 SADBØ2
9 -	9	9 SADBØØ
10 SADBØ9	10	10 SADB1Ø
11 -	11	11 SADBØ8
12 -	12	12 -
13 STCV	13	13 SADB11
14 D	14	14 D
15 -	15	15 UPCK16
16 +5D	16	16 +5D
17 -	17	17 -7 V
18 -	18	18 -
19 -	19	19 -14 V
20 -	20	20 +14 V
21 -	21	21 -19 V
22 -	22	22 +19 V
23 -	23	23 -
24 -	24	24 A
25 -	25	25 A
26 -	26	26 -
27 -	27	27 -
28 -	28	28 -
29 -	29	29 OTDIAD
30 -	30	30 -
31 -	31	31 -
32 -	32	32 OFAD

8.12-14

8.12.6 Additional connections

MOTHERBOARD A12 ---> UNIT A14
X526 --> (CABLE)---> X4001

1	AB01
2	+5 D
3	AB02
4	DB00
5	AB03
6	DB01
7	AB04
8	DB02
9	DB03
10	DB04
11	DB05
12	DB06
13	IOSL04LT
14	DB07
15	IL03--LT
16	UPRD--LT
17	UPWR--LT
18	D
19	D
20	-7 V

MOTHERBOARD A12 ---> UNIT A19
X527 -->(CABLE) ----> X4406

1	A
2	A
3	-5 D
4	BAVO
5	CON
6	+100 V
7	+7 V
8	+7 V
9	-7 V
10	-7 V
11	-14 V
12	-14 V
13	+14 V
14	+14 V
15	-19 V
16	-19 V
17	+19 V
18	+19 V
19	+40 V
20	+40 V

MOTHERBOARD A12 ---> UNIT A25
 X501 ---> (CABLE)---> X2502

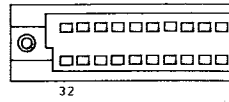
ROW A	ROW B	ROW C
1 -	1 -	1
2 CHSW	2 CHPT	2
3 FBRY	3 -	3
4 -	4 SADB00	4
5 SADB10	5 SADB01	5
6 SADB09	6 SADB02	6
7 SADB08	7 SADB03	7
8 SADB07	8 SADB04	8
9 SADB06	9 SADB05	9
10 SADB11	10 SECK1	10
11 -	11 UPRSOTLT	11
12 SEDA1	12 LEACL	12
13 -	13 STSAGTLT	13
14 CNSTCNLT	14 -	14
15 RSSTCNLT	15 -	15
16 -	16 -	16
17 UPWR--LT	17 -	17
18 DB15 * R507/7	18 UPRD--LT	18
19 DB13 * R507/5	19 DB14 * R507/6	19
20 DB11 * R507/3	20 DB12 * R507/4	20
21 IOSL07LT	21 DB10* R507/2	21
22 IOSL06LT	22 DB09* R503/8	22
23 DB07* R503/6	23 DB08* R503/7	23
24 DB05* R508/7	24 DB06* R508/9	24
25 DB03* R508/6	25 DB04* R508/7	25
26 DB02* R508/5	26 AB05* -	26
27 DB01* R508/4	27 AB04* R502/5	27
28 DB00* R508/3	28 AB03* R502/4	28
29 AB01* R502/2	29 AB02* R503/3	29
30 D	30 D	30
31 +5 D	31 D	31
32 +5 D	32 +5 D	32

* TERMINATED WITH R.../PINNUMBER

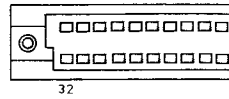
NOTE: The flatcable has crossed interconnections.

This means that connector pin A1 on one end becomes B32 on the other end, etc.

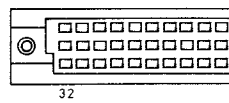
A1



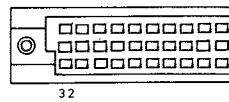
A2



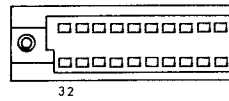
A3



A4



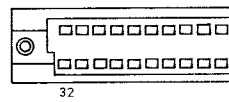
A5



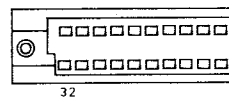
A6



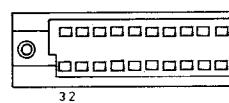
A7



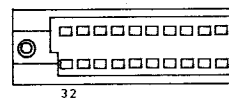
A8



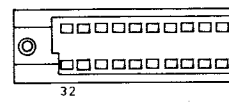
A9



A10



A11



○

X526

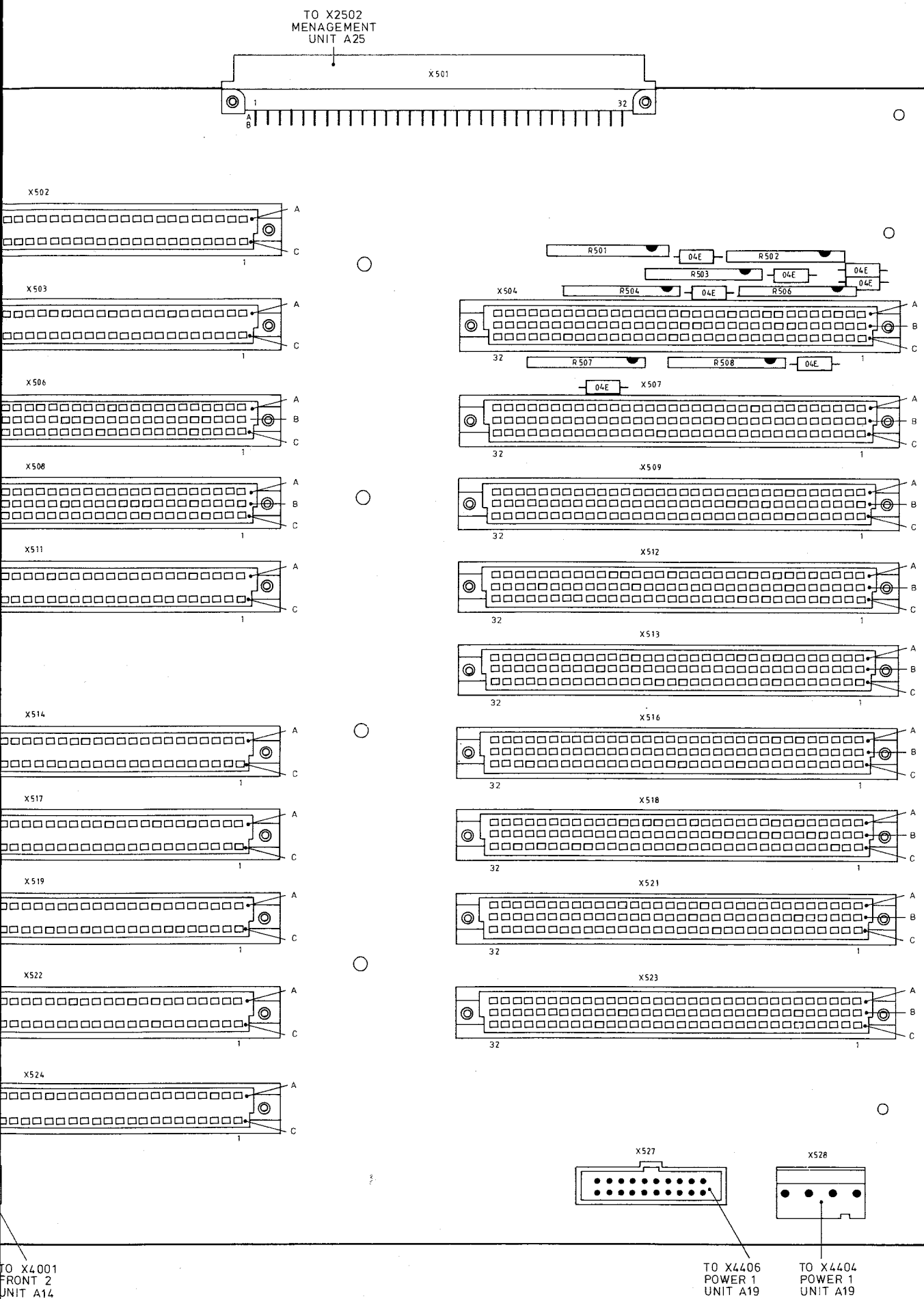


Figure 8.12.2 Unit A12 - MOTHERBOARD - p.c.b. lay-out.

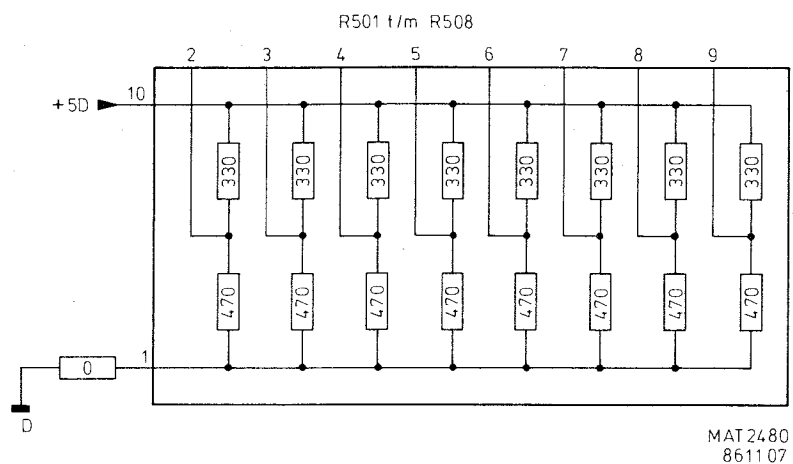


Figure 8.12.3 Unit A12 - MOTHERBOARD - circuit diagram.