

M380 T - M380/XP1 - M380/XP3 - M380/XP5

CHARACTERISTICS

Microprocessor	80386
Clock	20 MHz
RAM access time	100 ns/80 ns
Wait states	1
ROM memory	128 KB
Coprocessor	80387 Weitek WTL 1167
Memory	XP1-XP3 1 MB/48 MB XP5-M380T 1 MB/64 MB No memory on system board. All memory resides on expansion boards to be installed on BUS
Floppy disk controller	On system board
Hard disk controller	<p>M380 T GO728 (WD1007A) or GO565 (WD1009-SE2) ESDI 1:1 GO723 (WD1003-RA2) ST506-RLL 2:1 (Hard disk/floppy disk controller) GO720 (WD1005 WAH) ESDI 3:1</p> <p>M380/XP1 GO728 (WD1007A) or GO565 (WD1009-SE2) ESDI 1:1</p> <p>M380/XP3 GO728 (WD1007A) or GO565 (WD1009-SE2) ESDI 1:1</p> <p>M380/XP5 GO728 (WD1007A) or GO565 (WD1009-SE2) ESDI 1:1</p>
Controller and console board	M380 T and M380/XP5 only IF621 Console controller MI514 Console board
U-TURN board	M380 T IF618 M380/XP5 IF618 M380/XP1 IF614 M380/XP3 IF614
BUS Adapter board	M380 T IF617 M380/XP5 IF617 M380/XP1 IF615/IF624 M380/XP3 IF615/IF624
Expansion slots	M380 T 10 slots M380/XP5 10 slots M380/XP1 7 slots M380/XP3 7 slots

SYSTEM BOARD

BA814

ROM BIOS

2.0

POWER SUPPLY

M380/XP1 LA16/C

M380/XP3 LA21/C

M380 T PS30A

M380/XP5

MEMORY BOARDS

ME905 4 MB

16 SIMM 256 Kb x 9

ME915 2 MB

8 SIMM 256 Kb x 9

ME917 1 MB

4 SIMM 256 Kb x 9

ME924 16 MB

16 SIMM 1 Mb x 9

ME925 4 MB

4 SIMM 1 Mb x 9

ME926 4 MB

16 SIMM 256 Kb x 9

ME928 1 MB

4 SIMM 256 Kb x 9

ME929 2 MB

8 SIMM 256 Kb x 9

ME067 2 MB Field only

8 SIMM 256 Kb x 9

BOARDS

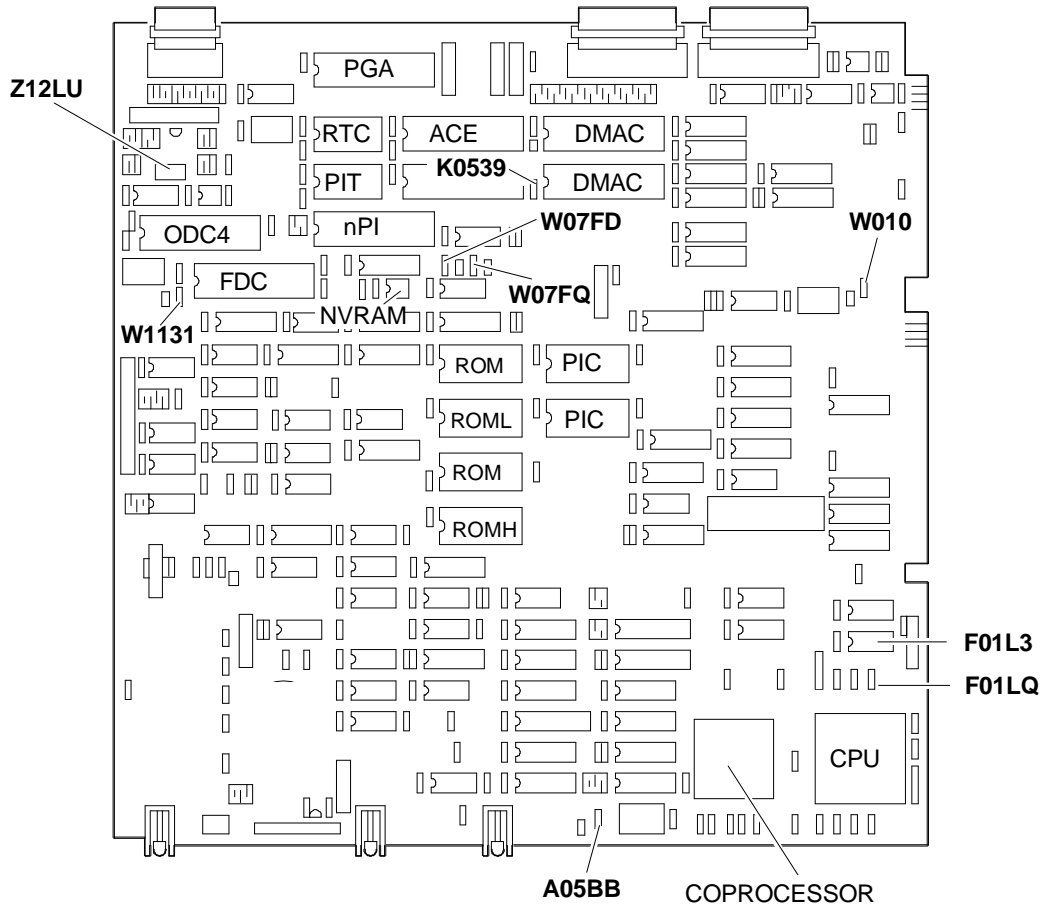
FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU system board	BA814	412142 M	M380T /XP1 /XP3 /XP5
Bus Adapter	IF624	412318 V	M380 /XP1/XP3 (7 slots)
Bus Adapter	IF615	411868 U	M380 /XP1/XP3 (7 slots)
Bus Adapter	IF617	412143 N	M380T /XP5 (10 slots)
Power supply 220 V	PS30A	412165 L	M380T /XP5-340W
Power supply 110 V		412164 K	"
Power supply 220 V	LA16C	411711 N	M380/XP1-185W
Power supply 110 V		4117110 Z	"
Power supply 220 V	LA21C	411771 S	M380/XP3-230W
Power supply 110 V		411770 D	"
U-TURN board	IF614	497576 N	M380 XP1/XP3
U-TURN board	IF618	447622 L	M380T /XP5
RAM expansion	ME905	412145 Q	4 MB M380T /XP5
RAM expansion	ME915	412208 G	2 MB M380/XP1/XP3
RAM expansion	ME917	412207 K	1 MB T/XP5/XP1/XP3
RAM expansion	ME924	412146 R	16MB T/XP5/XP1/XP3
RAM expansion	ME925	412352 X	4 MB M380/XP1/XP3
RAM expansion	ME067	-	2 MB /XP1 /XP3 field only
OEC video adapter	GO451/GO467/GO491	411860 Y	M380T (EGA-compatible)
PGC video adapter	GO423	411688 Y	M380T /XP1 /XP3 /XP5 (positive monitor)
OVC video adapter	GO470/GO481	412444 L	M380 /XP1 /XP3 /XP5 (VGA-compatible)
Hard Disk controller	GO720 (WD1005 WAH)	411869 V	M380T
Hard Disk controller	GO728 (WD1007 WAH)	412212 K	M380T /XP1 /XP3 /XP5
Hard Disk controller	GO723 (WD1003-RA2)	412141 L	M380T
Console controller	IF621	412144 P	M380T /XP5
Console board	MI514	412147 J	M380T /XP5

ROM BIOS/PAL/EPROM LEVEL ON SYSTEM BOARD

FUNCTION		POS.	EVOLUTION			
ROM BIOS	H	N07B1	PBUZ 1.09	PBVQ 1.13	PBVN 1.14	PBZ6 2.0
	L	SO751	PBUQ 1.09	PBVR 1.13	PBVP 1.14	PBZ7 2.0
Buffer control	PBUFCONT	B06B	PLY			
Clock generator	CLOCKGEN	C06B	PLY0	PLX6	PLXN	
Cycles generator	CYCLEGEN	D06B	PLYZ	PLY7		
Bus initialization	BUSINIT	E06B				
EPROM control	SBUFCONT	F06B				
Orders generator	GSIGGEN	G06B	PLYE	PLXX		
Control refresh	RFSHCONT	C05BN	PLX2			
Master bus	BMASCONT	D05BN	PLYK	PLXJ	PLXK	PLBS
Wait states	DELASCNT	E05BN	PLY2	PLXH		
Coprocessor control	COPRCONT	F04B	PLYU			
Bus cycles initialization	ALTINIT	G05BN	PLYT			
BAJAS direction	LOWADR	M07B7	PLYV			
Floppy control	FLOPCONT	N09B	PLYQ			
I/O decoder	IODEC	R0837	PLYR			
I/O port control	SPPCONT	V0731	PLYP			
MP keyboard controller	8742 AHP	X09DB	CSL5/4.04	CSL5/4.04	CSLS/4.05	
Floppy controller	R6765P	W113G	CSFA	CSFE		

NOTE: ROM BIOS evolution (Ver. M380 - M380 C).

SYSTEM BOARD COMPONENTS AND SETTINGS: A806/BA818/BA814



8

BTA1A

AREA	POSITION	FUNCTION
W010 A05BB W1131 K05339	IN * IN * IN * IN *	14 MHz clock 32 MHz clock 24 MHz clock 1.8 MHz clock
W07FD	IN OUT *	Test BURN-IN mode Normal
W07FQ	IN OUT *	PGC or OEC video controller VGA and other video controllers
F01LQ	IN OUT *	80387 coprocessor uses an external oscillator which must be installed on system board F01L3 80387 coprocessor uses system oscillator
Z12LU	1-2 IN / 3-4 OUT * 5-6 IN / 7-8 OUT * 9-10 OUT *	Floppy disk - setting for standard operations

NOTE 1: (*) Default setting.

NOTE 2: Information valid for all Personal Computer models.

COMPONENTS

NAME (on page 9-3)	FUNCTION	
CPU	80386	CPU
NPX	80387	Coprocessor
ROM	User ROM	
ROMH / ROML	BIOS ROM	
PIC	8259A (2)	Interrupt controller
NVRAM	NMC9306	Non-volatile RAM
FDC	PD765	Floppy disk controller
ODC4	OMEGA4	Floppy disk controller
nPI	8742	Keyboard controller
PIT	8245	Timer
RTC	MC146818A	Real time clock
ACE	NS16450A	Serial port controller
DMAC	8237A (2)	RAM access controller
PGA	PGA	Parallel port controller

SETUP OPERATIONS

PAGE 1: C-MOS RAM	PAGE 2: RAM NVRAM
Date	Serial Port
Time	Parallel port
System board memory size	Basic memory
Extended memory	Memory test
Floppy A	Scroll type
Floppy B	I/O delay time
Hard disk C	Delay time on memory
Hard disk D	Monitor adapter
Math Coprocessor 80387	Monitor type
CRT adapter type	

COMPATIBLE HARD DISKS

TYPE	MANUFACTURER	CAPACITY	CYL	T	WPC	LZ
1	Standard 85 ms	10 MB	306	4	128	305
2	OPE XM5221 half size	21 MB	615	4	256	700
2	Seagate ST225	21 MB	615	4	256	700
2	NEC D3126	21 MB	615	4	256	700
3	WREN 2 full size	40 MB	925	5	128	924
4	CDC WREN 1	30 MB	697	5	128	696
5	ST4096	80 MB	1024	9	NO	1023
6	OPE XM5340	42 MB	820	6	256	819
7	NEC D5146H	42 MB	615	8	128	614
8	TM755 slim size	42 MB	981	5	NO	980
9	CDC WREN II slim size	42 MB	981	5	128	980
10	Micropolis 1324 full size	53 MB	1024	6	NO	1023
10	RODIME RO413 full size	53 MB	1024	6	NO	1023
11	CDC WREN II full size	55 MB	925	7	128	924
12	Micropolis 1325 full size	71 MB	1024	8	NO	1023
12	RODIME RO414 full size	71 MB	1024	8	NO	1023
13	CDC WREN II full size	71 MB	925	9	128	924
14	Micropolis 1323-A full size	44 MB	1024	5	NO	1023
15	RESERVED					
16	OPE XM5220 85 ms	20 MB	612	4	128	656
16	NEC D5126	20 MB	612	4	128	656
16	OPE XM3220	20 MB	612	4	128	656
16	Miniscribe M3425	20 MB	612	4	128	656
16	NEC D5126H	20 MB	612	4	128	656
17	TANDON TM 362 85 ms	20 MB	612	4	NO	663
18	Seagate ST251 40 ms	40 MB	820	6	NO	880
19	Rodime RO3055 40 ms	40 MB	872	6	0	871
20	Miniscribe M8425 68 ms	20 MB	612	4	0	663
21	Seagate ST277TR	62 MB	820	6	-1	819
22	OPE XM5340/60	62 MB	820	6	123	819
23	NEC D5147H	62 MB	615	8	384	664
24	NEC D5652	136 MB	820	10	-1	822
25	Micropolis 1355 ESDI	135 MB	1021	8	-1	1023
26	Micropolis 1353 ESDI	67 MB	1021	4	-1	1023
27	NEC D5452	62 MB	823	10	512	824

8

Where: CYL: No. of disk cylinders
T: No. of disk heads
WPC:Precompensation cylinder number
LZ: Head parking cylinder number

ME9xx RAM MEMORY BOARD

COMPATIBILITY NOTES

BOARD	NOTES
Board ME925 4 MB	On this board 80 ns 1 Mb x 9 SIMM modules have been introduced; they replace 100 ns 1 Mb x 9 SIMM modules. To expand this board use the expansion KIT related to the type of SIMMs already on board. Possible kits are: - EXM 25-885 (100 ns SIMM modules) - EXM 26-805 (80 ns SIMM modules)
Board ME913 16 MB	On this board 80 ns 1 Mb x 9 SIMM modules have been introduced; they replace 100 ns 1 Mb x 9 SIMM modules. To replace SIMM modules, check which type of SIMMs are already on the board. 80 ns SIMM suppliers are: NEC - SAMSUNG
Board ME067	This board is used only by the field to solve problems with the LAN board NPU9144. It replaces the 2MB ME915 board. The difference between the two boards is as follows: the M915 board has PAL PLY9 in position C07 while on the ME067 board PAL PLY9 has been replaced by PAL PLZ9.

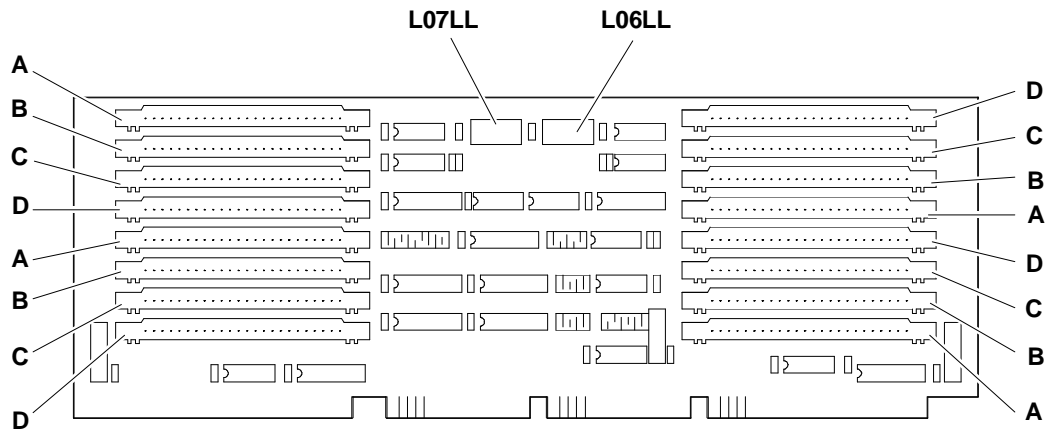
PAL LEVEL ON MEMORY EXPANSION BOARD

FUNCTION	POSITION	EVOLUTION		
PARGEN	E07	PLY7	PLY7	PLZ9
INTLCONT	C07	PLY9	PLY9	
CASCONT	D08	PLXA	PLXA	
RASCONT	D07	PLXB	PLX3	

MEMORY BOARD TABLE

MEMORY BOARD	CAPACITY	SIMM	SIMM TYPE
ME905	4 MB	16, 256 Kb x 9	TI TM4256GU9-10L
ME915	2 MB	8, 256 Kb x 9	NMB MM2801J9S-8
ME917	1 MB	4, 256 Kb x 9	HIT HB561409B-10
ME926	4 MB	16, 256 Kb x 9	NMB MM2801J9S-8
ME928	1 MB	4, 256 Kb x 9	HIT HB561409B-10
ME929	2 MB	8, 256 Kb x 9	
ME924	16 MB	16, 1 Mb x 9	TOS THM91000S-10
ME925	4 MB	4, 1 Mb x 9	NEC SAMSUNG

RAM BOARD SETTINGS

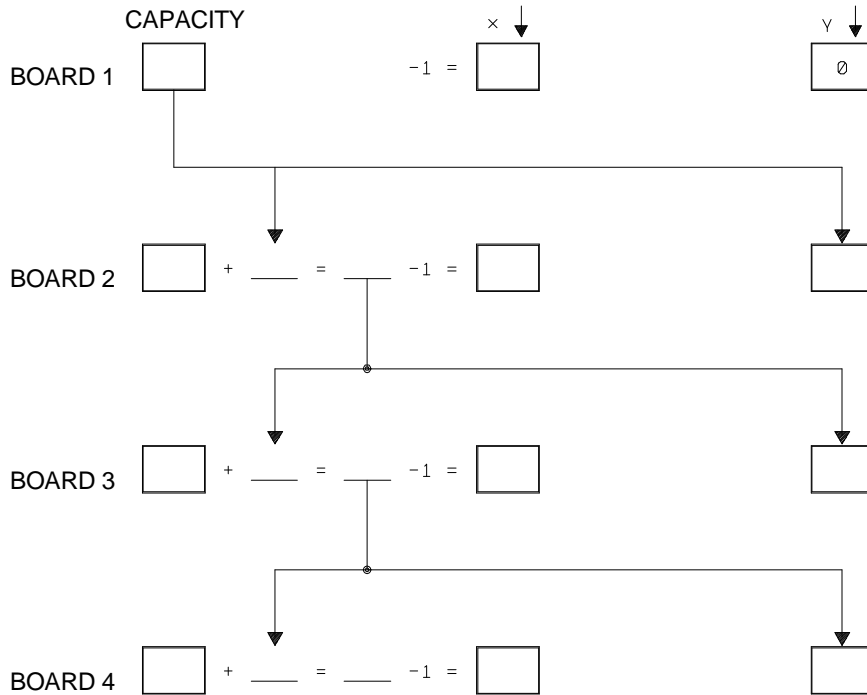


BDP8A

CAPACITY

No. SIMM MODULES MEMORY EXPANSION BOARD	SOCKETS WITH SIMM MODULES	CAPACITY	
		256K bit SIMM	1M bit SIMM
4	A	1 MB	4 MB
8	AB	2 MB	8 MB
16	ABCD	4 MB	16 MB

X, Y CALCULATION SYSTEM



BPA1A

L07LL DIP-SWITCH (SWITCHES 1-6)

CAPACITY		DIP-SWITCH POSITION					
256 K KIT	1 MB KIT	1	2	3	4	5	6
1	4	ON	OFF	OFF	ON	ON	ON
2	8	ON	OFF	ON	ON	ON	ON
4	16	ON	ON	ON	ON	ON	ON

L07LL DIP-SWITCH (SWITCHES 7-8)

VALUE OF Y	DIP-SWITCH POSITION	
	7	8
	ON	ON
	ON	OFF
	OFF	ON
	OFF	OFF

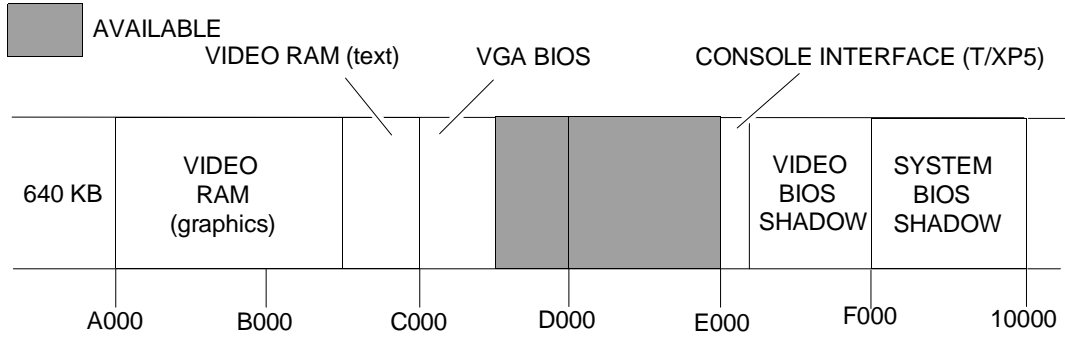
L06LL DIP-SWITCH (SWITCHES 1-4)

VALUE OF X				DIP-SWITCH POSITION				VALUE OF X				DIP-SWITCH POSITION			
				1	2	3	4					1	2	3	4
0	16	32	48	ON	ON	ON	ON	8	24	40	56	OFF	ON	ON	ON
1	17	33	49	ON	ON	ON	OFF	9	25	41	57	OFF	ON	ON	OFF
2	18	34	50	ON	ON	OFF	ON	10	26	42	58	OFF	ON	OFF	ON
3	19	35	51	ON	ON	OFF	OFF	11	27	43	59	OFF	ON	OFF	OFF
4	20	36	52	ON	OFF	ON	ON	12	28	44	60	OFF	OFF	ON	ON
5	21	37	53	ON	OFF	ON	OFF	13	29	45	61	OFF	OFF	ON	OFF
6	22	38	54	ON	OFF	OFF	ON	14	30	46	62	OFF	OFF	OFF	ON
7	23	39	55	ON	OFF	OFF	OFF	15	31	47	63	OFF	OFF	OFF	OFF

L06LL DIP-SWITCH (SWITCHES 5-8)

VALUE OF Y				DIP-SWITCH POSITION				VALUE OF Y				DIP-SWITCH POSITION			
				5	6	7	8					5	6	7	8
0	16	32	48	ON	ON	ON	ON	8	24	40	56	OFF	ON	ON	ON
1	17	33	49	ON	ON	ON	OFF	9	25	41	57	OFF	ON	ON	OFF
2	18	34	50	ON	ON	OFF	ON	10	26	42	58	OFF	ON	OFF	ON
3	19	35	51	ON	ON	OFF	OFF	11	27	43	59	OFF	ON	OFF	OFF
4	20	36	52	ON	OFF	ON	ON	12	28	44	60	OFF	OFF	ON	ON
5	21	37	53	ON	OFF	ON	OFF	13	29	45	61	OFF	OFF	ON	OFF
6	22	38	54	ON	OFF	OFF	ON	14	30	46	62	OFF	OFF	OFF	ON
7	23	39	55	ON	OFF	OFF	OFF	15	31	47	63	OFF	OFF	OFF	OFF

MEMORY MAP



I/O ADDRESS MAP

8

ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-01F	DMA controller 1	2F8-2FF	Serial port 2
020-03F	Interrupt controller 1	300-31F	External boards
040-05F	Timer	360-36F	Reserved
060-06F	Keyboard controller 8742	378-37F	Parallel port 1
070-07F	RTC	380-38F	SDLC 2
080-09F	DMA page register	3A0-3AF	SDLC 1
0A0-0BF	Interrupt controller 2	3B0-3BF	Black and white monitor
0C0-0DF	DMA controller 2	3C0-3CF	Reserved
0F0	Processor	3D0-3DF	Colour monitor
0F8-0FF	Coprocessor	3F0-3FF	Floppy controller
278-27F	Parallel port 2	3F8-3FF	Serial port 1

INTERRUPT LEVELS

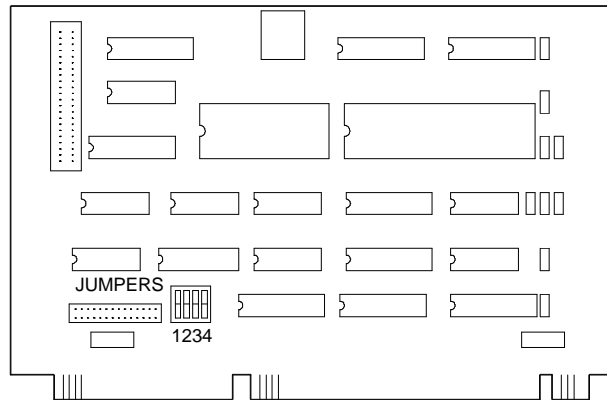
LEVEL	FUNCTION	LEVEL	FUNCTION
IRQ0	Timer	IRQ8	RTC
IRQ1	Keyboard	IRQ9	Redirected to IRQ2 via software
IRQ2	Interrupt from interrupt controller 2	IRQ10	Available
IRQ3	Serial port 2	IRQ11	Available
IRQ4	Serial port 1	IRQ12	Available
IRQ5	Parallel port 2	IRQ13	80387
IRQ6	Floppy disk	IRQ14	Hard disk
IRQ7	Parallel port 1	IRQ15	Available

DMA CHANNELS

CHANNEL	FUNCTION	CHANNEL	FUNCTION
DRQ0	8-BIT memory refresh	DRQ4	Reserved
DRQ1	8-BIT reserved	DRQ5	16-BIT available
DRQ2	8-BIT floppy disk	DRQ6	16-BIT available
DRQ3	8-BIT reserved	DRQ7	16-BIT available

IF621 CONSOLE INTERFACE BOARD

This board is installed on M380/T - M380/XP5 - M380/XP7 - M380/XP9 Personal Computers.



BBD9A

DIP-SWITCH SETTINGS

DIP-SWITCH				ROM ADDRESS
1	2	3	4	
ON	ON	OFF	ON	C8000-C9FFF
OFF	ON	OFF	ON	CA000-CBFFF
ON	OFF	OFF	ON	CC000-CDFFF
OFF	OFF	OFF	ON	CE000-CFFFF
ON	ON	ON	OFF	D0000-C1FFF
OFF	ON	ON	OFF	C2000-D3FFF
ON	OFF	ON	OFF	D4000-D5FFF
OFF	OFF	ON	OFF	D6000-D7FFF
ON	ON	OFF	OFF	D8000-D9FFF
OFF	ON	OFF	OFF	DA000-DBFFF
ON	OFF	OFF	OFF	DC000-DDFFF
OFF	OFF	OFF	OFF	DE000-DFFFF

JUMPER SETTINGS

JUMPER NO.	FUNCTION
1-2	IRQ14
3-4	IRQ13
5-6	IRQ12
7-8	IRQ11
9-10	IRQ10
11-12	IRQ3
13-14	IRQ4
15-16	IRQ5
17-18	IRQ6
19-20	IRQ7

NOTE: By default, the system does not use interrupts (all jumpers set to OFF).

EVOLUTION			
D03	PLX5	PLXP	
D05	PBVZ	PBU3	

HARDWARE COMPATIBILITY

GRAPHICS PRODUCTS	EXPANSION MEMORIES
AST RESEARCH AST-3G PLUS ATI EGA WONDER GENOA SUPER EGA HIRES HERCULES COLOR CARD (GB200) HERCULES GRAPHICS CARD (GB102) IBM COLOR/GRAPHICS ADAPTER (5153001) IBM ENHANCED GRAPHICS ADAPTER (5154001) IBM VGA ADAPTER PARADISE EGA 480 PARADISE MODULAR GRAPHICS CARD (06-1, Revision 02) PARADISE MULTI-DISPLAY CARD (05-1) QUADRAM QUAD EGA PLUS TECMAR GRAPHICS MASTER BOARD (20037, REV. C) VIDEO-7 VEGA DELUXE 325 INC. ADVANTAGE GRAPHICS INTERFACE (325 SHADOW)	AST ADVANTAGE (ADV-128S) AST RAMPAGE/AT (RAMPAT-2000) AST RAMPAGE/286 (RAMP286) BOCARAM/AT EVEREX RAM-2000 (EV-171) IBM 512 KB EXPANSION MEMORY OPTION (6450203) IBM 512 KB/2 MB EXPANSION MEMORY OPTION (6450343) IBM ENHANCED MEMORY EXPANSION ADAPTER (74X8635) INTEL ABOVEBOARD/AT (PCMB2010) INTEL ABOVEBOARD/286 (PCMB4020) QUADRAM LIBERTY/AT
MODEM	MOUSE
HAYES SMARTMODEM (1200B) QUADRAM QUADMODEM II (QM2024) TELENETICS EXPRESSDATA 24i (24i-12i) VEN-TEL PC MODEM HALF-CARD (PCM XT) HAYES SMARTMODEM 1200	LOGITECH BUS MOUSE (P7-3F) MICROSOFT BUS MOUSE, REV. C MICROSOFT SERIAL MOUSE MOUSE SYSTEMS PC MOUSE (M1)
I/O INTERFACE PRODUCTS	NETWORKS & LAN PRODUCTS
APPARAT PARALLEL/SERIAL CARD (7950), REV. 1 IBM ASYNCHRONOUS COMMUNICATIONS CARD (1502074) IBM MONO DISPLAY/PRINTER ADAPTER (1504900) IBM PRINTER ADAPTER (1505200) IBM SERIAL/PARALLEL CARD (6450215)	AT&T STARLAN NETWORK IBM PC NETWORK IBM TOKEN RING NETWORK NOVELL NETWORK 3COM NETWORK