

M28

CHARACTERISTICS

Microprocessor	80286
Clock	8 MHz (4 MHz BUS)
RAM access time	150 ns
Wait states	1
Minimum/maximum RAM capacity	512 KB/1 MB
ROM memory	32 KB

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BOARDS

FUNCTION	DESCRIPTION	D.R.S. CODE	CHARACTERISTICS
CPU System Board	BA802	411082 C	
CPU System Board	BA807	411082 V	ROM BIOS 2.07
CPU System Board	BA808/BA809		ROM BIOS 2.09
CPU System Board	BA815		ROM BIOS 2.12
CPU System Board	BA816	411949 V	ROM BIOS 2.12
Console Controller	CO113	964908 F	
Bus Adapter	IF606	411081 B	
Power supply	LA21	411077 N	W = 230
U-TURN board	IF608	-	
RAM expansion	ME903	411993 A	Maximum 2 MB
Monitor adapter	GO318	-	
Monitor adapter	GO380	411216 N	
Monitor adapter	GO709	411080 N	
Monitor adapter	GO413	411682 J	M283270
Monitor adapter	GO329	48193 H	E.G.C.
MDU adapter	GO705/GO711	411084 E	
HDU adapter	GO406	411083 D	
MFDU/HDU adapter	GO714	411638 V	BIOS 2.07 required

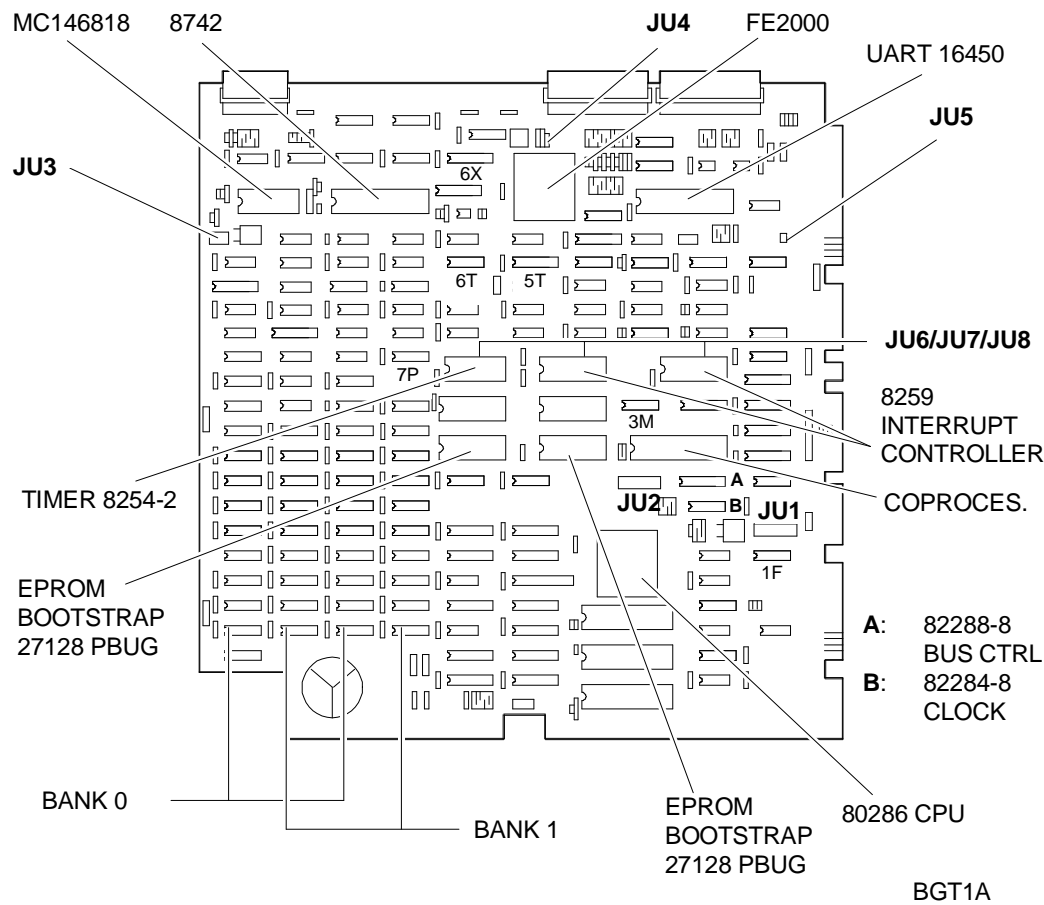
ROM BIOS/PAL/EPROM LEVEL

FUNCTION		POS.	EVOLUTION							
ROM	H	6 K	PBUG/1.05	PBUL/1.08	1.10	PBUS/2.07	PBUY/2.09	PBU8/2.10	PBU6/2.12	
BIOS	L	4 K	PBUF/1.05	PBUM/1.08	1.10	PBUT/2.07	PBUX/2.09	PBU9/2.10	PBU7/2.12	
Wait logic		5 D	PL02							
Bus logic		6 T	PBUC							
RAM		7 P	PBUB							
select.										
BIO select.		3 M	PBUA							
I/O logic		1 F	PBUD							
RAM de-		5 T	PBUH							
code										
PIEGY		6 X	PL99							
BACK										
KBC		8 V	CSP9/2.01			CSL7/203				
uP8742										
Keyb. FW			CSPZ/1.0	CSSF/1.1						

COMPATIBILITY NOTES

ROM BIOS 1.05	- Solves lock problems when hard disk is formatting defective tracks
ROM BIOS 1.08	- System distinguishes between 360 KB and 1.2 MB FDs
ROM BIOS 2.07 (BIT 168.605/05)	- 102-key keyboard management (ANK 2502) - 720 KB micro floppy disk management - "COMBO" HD/MFD controller board GO714 management - "NOVEL" LAN management
ROM BIOS 209 (CD 168.601/518)	- Solves Random lock problems when working with Starlan with IRQ=2 - Eliminates interrupt 13 routine locks in the Step Motor phase
ROM BIOS 2.10	- Solves losses of set-up problems
ROM BIOS 2.12 (CDM 168.60.1/525)	- 1.44 MB micro floppy disk management - OEC/PGC video controller management

**SYSTEM BOARD COMPONENTS AND SETTINGS:
BA802 / BA807 / BA808 / BA815 / BA816**



JUMPERS

JU4 and JU5			
AREA	4	5	FUNCTION
Production	IN*	IN*	Test both OUT

JU1 1..... 8 16..... 9						
AREA	1-16	2-15	3-14	FUNCTION		
Parity check	IN			512 KB on system board		
	OUT*			1 MB on system board		
User Eprom		IN *	OUT*	2764/27128		
		OUT	IN	27256		
AREA	4-13	5-12	6-11	7-10	8-9	FUNCTION
BIOS Eprom	IN*	OUT*				27128
	OUT	IN				27256
Parallel port			IN*			Enabled
			OUT			Not enabled
Serial port				IN*		Not enabled
				OUT		Enabled

JU2 1..... 8 16..... 9					
AREA	1-16	2-15	3-14	4-13	FUNCTION
Coprocesor clock	IN	OUT	OUT	IN	5.33 MHz
	OUT	IN	IN	OUT	8 MHz *
AREA	5-12	6-11	7-10	8-9	FUNCTION
Video adapter	IN*	OUT*			Video adapter only
	OUT	IN			Video adapter + EGC
	IN	IN			External video adapter enable
	OUT	OUT			

JU3 1..... 4 8..... 5					
AREA	1-8	2-7	3-6	4-5	FUNCTION
Production	IN*				Test
Video type		IN*			Colour
		OUT			Monochromatic
Production			IN*		-

JU6-JU7-JU8				
AREA	6	7	8	FUNCTION
CPU Wait states	IN	OUT	OUT	4 Wait states
	OUT	IN	OUT	5 Wait states
	OUT	OUT	IN	6 Wait states

(*) Default position

I/O ADDRESS MAP

ADDRESS	FUNCTION	ADDRESS	FUNCTION
000-01F	DMA controller 1	2F8-2FF	Serial port 2
020-03F	Interrupt controller 1	300-31F	Reserved
040-05F	Timer	360-36F	Reserved
060-06F	Keyboard controller	378-37F	Parallel port 1
070-07F	RTC, CMOS, NMI mask	380-38F	COM2 SDLC
080-09F	DMA page register	3A0-3AF	SDLC 1
0A0-0BF	Interrupt controller 2	3B0-3BF	Reserved
0F0-0FF	80287	3C0-3CF	Reserved
1F0-1F8	Hard disk controller	3D0-3DF	Video controller
200-207	Reserved	3F0-3F7	Floppy disk controller
278-27F	Parallel port 2	3F8-3FF	Available

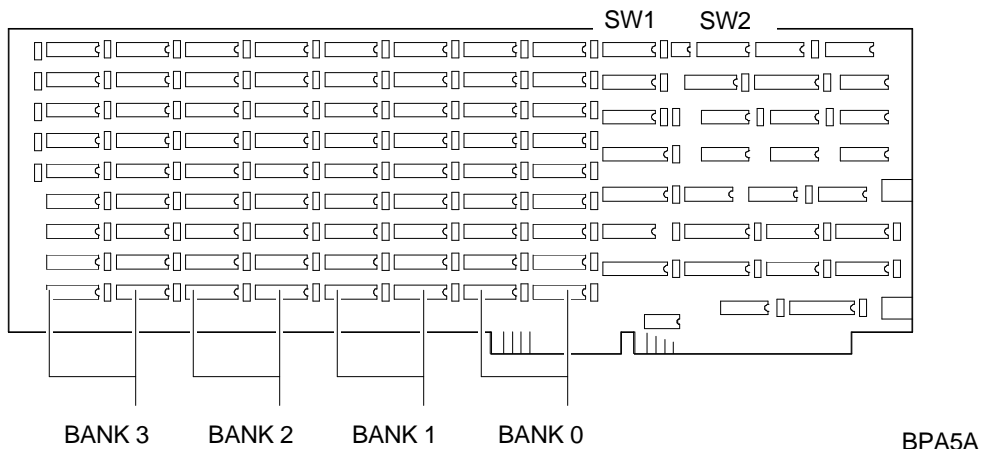
INTERRUPT LEVELS

LEVEL	FUNCTION
IRQ0	Channel 0 timer
IRQ1	Keyboard controller
IRQ2	Interrupt from interrupt controller 2
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Parallel port 2
IRQ6	Floppy disk controller
IRQ7	Parallel port 1
IRQ8	Date and Time
IRQ9	Redirected to IRQ 2
IRQ10	Available
IRQ11	Available
IRQ12	Available
IRQ13	80287
IRQ14	Hard disk controller
IRQ15	Available

DMA CHANNELS

CHANNEL	FUNCTION
DMA0	8 BIT
DMA1	8 BIT
DMA2	8 BIT
DMA3	8 BIT
DMA4	16 BIT
DMA5	16 BIT
DMA6	16 BIT
DMA7	16 BIT

SETTINGS FOR MEMORY EXPANSION BOARD ME903 (MEM2852)



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FOR M28

SW1 GROUP					
AREA	1	2	3	4	FUNCTION
Parity check		ON			YES
		OFF			NO
RAM Capacity on-board ME-903			OFF	OFF	512 KB
			ON	OFF	1 MB
			OFF	ON	1.5 MB
			ON	ON	2 MB

SW2 GROUP									
AREA	1	2	3	4	5	6	7	8	FUNCTION
System board 512 K	ON	ON	ON	OFF	ON	ON	ON	OFF	1st board on bus
	ON	ON	ON	OFF	OFF	ON	ON	OFF	2nd board on bus
	ON	ON	ON	OFF	ON	OFF	ON	OFF	3rd board on bus
System board 1 MB	OFF	OFF	ON	OFF	ON	ON	ON	OFF	1st board on bus
	OFF	OFF	ON	OFF	OFF	ON	ON	OFF	2nd board on bus
	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	3rd board on bus

FOR M250

SW1 GROUP: Configures expansion board capacity, set it as M28.

SW2 GROUP:

FOR M250 WITH 1 MB ON SYSTEM BOARD

SW2 GROUP								
No. MEM 2852	1	2	3	4	5	6	7	8
1	ON	ON	ON	OFF	ON	ON	ON	OFF
2	ON	ON	ON	OFF	OFF	ON	ON	OFF
3	ON	ON	ON	OFF	ON	OFF	ON	OFF

FOR M250 WITH 2 MB ON SYSTEM BOARD

SW2 GROUP								
No. MEM 2852	1	2	3	4	5	6	7	8
1	ON	OFF	ON	ON	OFF	ON	ON	OFF
2	ON	OFF	ON	ON	ON	OFF	ON	OFF
3	ON	OFF	ON	ON	OFF	OFF	ON	OFF

NOTE: If the MEM 2852 board is installed in a system with 1 MB on the system board, 256 KB are lost from total system memory.

