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# MB-02+

HARDWARE DOCUMENTATION

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## RTC:

**LOW ADDRESS 3, %00000011, #03; TYPE: OUT, IN**

HIGH ADDRESS	A3	A2	A1	A0	REGISTER	BIT3	BIT2	BIT1	BIT0	VALUE	REMARKS
0, #00	0	0	0	0	S1	s4	s3	s2	s1	0 - 9	1 - second digit register
1, #01	0	0	0	1	S10	*	s30	s20	s10	0 - 5	10 - second digit register
2, #02	0	0	1	0	MI1	mi4	mi3	mi2	mi1	0 - 9	1 - minute digit register
3, #03	0	0	1	1	MI10	*	mi30	mi20	mi10	0 - 5	10 - minute digit register
4, #04	0	1	0	0	H1	h4	h3	h2	h1	0 - 9	1 - hour digit register
5, #05	0	1	0	1	H10	*	AM/PM	h20	h10	0 - 2	AM/PM, 10 - hour register
6, #06	0	1	1	0	D1	d4	d3	d2	d1	0 - 9	1 - day digit register
7, #07	0	1	1	1	D10	*	*	d20	d10	0 - 3	10 - day digit register
8, #08	1	0	0	0	MO1	mo4	mo3	mo2	mo1	0 - 9	1 - month digit register
9, #09	1	0	0	1	MO10	*	*	*	mo10	0 - 1	10 - month digit register
10, #0A	1	0	1	0	Y1	y4	y3	y2	y1	0 - 9	1 - year digit register
11, #0B	1	0	1	1	Y10	y40	y30	y20	y10	0 - 9	10 - year digit register
12, #0C	1	1	0	0	W	*	w3	w2	w1	0 - 6	Week register
13, #0D	1	1	0	1	RegD	30sec ADJ	IRQ FLAG	BUSY	HOLD	-	Control register D
14, #0E	1	1	1	0	RegE	t1	t0	ITRPT /STND	MASK	-	Control register E
15, #0F	1	1	1	1	RegF	TEST	24/12	STOP	RESET	-	Control register F

**Bit \* does not exist.**

**Please mask AM/PM bit with 10's of hours operations.**

**Busy is read only, IRQ can be set low only.**

Data Bit	AM/PM	ITRPT/STND D	24/12
1	PM	ITRPT	24
0	AM	STND	12

**ITRPT/STND = INTERRUPT/STANDARD**

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## HARDDISK:

**ADDRESS 7, %00000111, #07; TYPE: OUT, IN**

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## DMA:

**ADDRESS 11, %00001011, #0B; TYPE: OUT, IN**

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## FDC:

**ADDRESS 15, %00001111, #0F; TYPE: OUT, IN**

**ADDRESS 47, %00101111, #2F; TYPE: OUT, IN**

**ADDRESS 79, %01001111, #4F; TYPE: OUT, IN**

**ADDRESS 111, %01101111, #6F; TYPE: OUT, IN**

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**FLOPPY:**

**ADDRESS 19, %00010011, #13; TYPE: OUT**

- BIT0 /ACTIVE A
- BIT1 /MOTOR ACTIVE A
- BIT2 /ACTIVE B
- BIT3 /MOTOR ACTIVE B
- BIT4 /ACTIVE C
- BIT5 /MOTOR ACTIVE C
- BIT6 /ACTIVE D
- BIT7 /MOTOR ACTIVE D

**ADDRESS 19, %00010011, #13; TYPE: IN**

- BIT0 /DRQ
- BIT1 /DISK CHANGE
- BIT2 /INTRQ
- BIT3 HDIN
- BIT4 /MOTOR ACTIVE A
- BIT5 /MOTOR ACTIVE B
- BIT6 /MOTOR ACTIVE C
- BIT7 /MOTOR ACTIVE D

**CANNON 37:**

PIN	FUNCTION
1	GND - ground
2	PA0
3	PA1
4	PA2
5	PA3
6	PA4
7	PA5
8	PA6
9	PA7
10	PB0
11	PB1
12	PB2
13	PB3
14	PB4
15	PB5
16	PB6
17	PB7
18	GND - ground
19	UCC - power 5V
20	PC0
21	PC1
22	PC2
23	PC3
24	PC4
25	PC5
26	PC6
27	PC7
36	*/RESET - output only!
37	UCC - power 5V

**MEMORY:**

**ADDRESS 23, %00010111, #17; TYPE: OUT**

- BIT0 - BIT4 page (0-31)
- BIT5 WRITE ENABLE
- BIT6 SRAM ENABLE
- BIT7 EPROM ENABLE

If BIT6 and BIT7 are set /RESET is generated.

**BACK-UP BATTERY INFORMATION:**

Lithium-based battery used for RTC & memory back-up.  
**Type:** CR-2032

**PIO:**

- BASE ADDRESS 31, %0xx11111, #1F; TYPE OUT, IN
- or
- BASE ADDRESS 27, %0xx11011, #1B; TYPE OUT, IN

**REGISTER**

REGISTER	FUNCTION
PA	
PB	
PC	
CWR	

**CANNON 9:**

PIN	FUNCTION	KEMPSTON	MOUSE
1	PA3	UP	HOR. 1
2	PA2	DOWN	VER. 1
3	PA1	LEFT	HOR. 2
4	PA0	RIGTH	VER. 2
6	PA4	FIRE	LEFT BUTTON
7	UCC - power	UCC - power	UCC - power
8	GND - ground	GND - ground	GND - ground
9	PA5	-	RIGHT BUTTON

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**PRINTER:**

<b>CANNON 25</b>	<b>CANNON 37</b>	<b>FUNCTION</b>	<b>TYPE</b>
1	PC1	/STROBE	output
2-9	PB0-PB7	D1-D8	output
10	PC2	/ACK	input
11	PC7	BUSY	input
12	PC6	PAPEROUT	input
13	PC5	SELECT	input
14	PC3	/AUTOFEED	output
15	PC4	/ERROR	input
25	GND	GND	ground

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