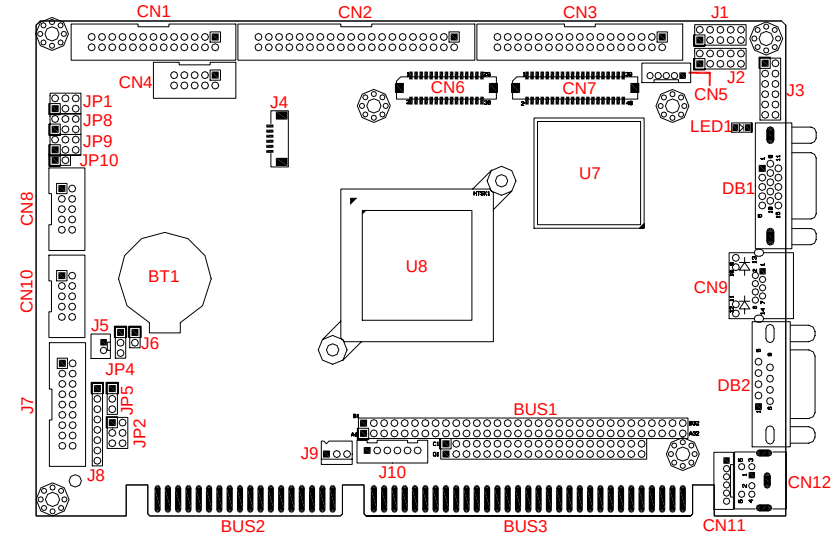
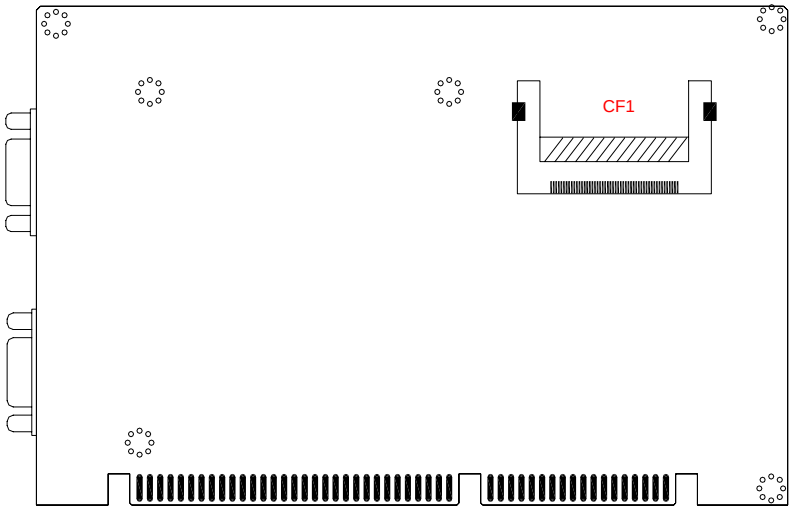
FB2400 Series User's Quick Setting

1. Brief

The FB2400 is a Low power Vortex86DX, all in one, half-size CPU card. This user's quick setting provides the jumper and switch settings, connector location, and their pin assignment.

2. Board Placement





3. Packing List

1 FB2400x all-in-one CPU board.
1 serial port and parallel port interface cable with bracket.
1 40-pin hard disk drive interface cable. (Optional)
1 34-pin floppy drive interface cable. (Optional)
1 PS/2 keyboard and mouse port adapter cable. (Optional)
1 or 2 USB adapter cables. (Optional)
1 compact disc includes software utilities and manuals.

4. Features

* On-board Vortex86DX CPU (running at 800MHz) with heat sink only. (Fanless operation)
* Compact size slot card with fully compatible ISA and PC/104 bus.
* On-board 128MB DDR2 RAM (256MB maximum)
* 4 USB ports and one 10/100M-TX Ethernet with RJ-45 connector.
* Supports CRT and LCD/LVDS (optional) with up to 4MB video memory.
* 1 floppy, 1 PCI IDE, 1 parallel, 1 RS-232 (optional 2 more) and 1 RS-232/422/485 ports.
* CompactFlash socket for 5V CompactFlash and MicroDrives.
* On-board 128MB Flash Disk and optional on-board non-volatile SRAM..
* PS/2 keyboard and mouse interface, 16 TTL I/O lines, On-board buzzer, and LED indicator.
* Software programmable watchdog timer and Flash BIOS with easy upgrade utility.
* Compact size, 185 mm x 122 mm.

5. Connectors and Jumpers List

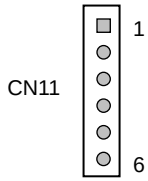
Name	Function	Name	Function
CN1	Parallel Port Connector (26-pin IDC)	J1	USB #1 & #2 Connector (J2*5)
CN2	40-pin IDE Connector (40-pin IDC)	J2	USB #3 & #4 Connector (J2*5)
CN3	Floppy Connector (34-pin IDC)	J3	Multi-Function Header (J2*6)
CN4	COM2 Connector (10-pin IDC)	J4	Reserved Header (6-pin)
CN5	LCD Power Connector (5-pin JST)	J5	External Battery Connector (2-pin JST)
CN6	LVDS Connector (30-pin DF13)	J6	Clear CMOS RAM Header (J1*2)
CN7	LCD Connector (40-pin DF13)	J7	TTL I/O Connector (18-pin IDC)
CN8	COM3 Connector (10-pin IDC)	J8	Reserved Header (J1*8)
CN9	LAN Connector (RJ45 w/LEDs)	J9	Cooling Fan Connector (3-pin molex)
CN10	COM4 Connector (10-pin IDC)	J10	Aux. Power Connector (6-pin JST)
CN11	KB/MS Connector (6-pin JST)	JP1	COM2 Mode Select #1 (J2*3)
CN12	KB/MS Connector (6-pin mini-Din)	JP2	Flash Disk* Master/Slave Select (J2*3)
CF1	CompactFlash Socket (50-pin)	JP4	Int./Ext. Battery Select (J1*3)
DB1	CRT Connector (15-pin D-sub)	JP5	SRAM* Mapping Segment Select (J1*3)
DB2	COM1 Connector (9-pin D-sub)	JP8	COM2 Mode Select #2 (J2*3)
BUS1	PC/104 Connector (64 and 40 pin)	JP9	COM2 Mode Select #3 (J2*3)
BUS2	ISA Golden Finger (16-bit)	JP10	COM2 Mode Select #4 (J1*2)
BUS3	ISA Golden Finger (8-bit)		
BZ1	On-Board Buzzer	LED1	Power/Watchdog LED (Green)

Note*: On-board Non-Volatile SRAM and On-board Flash Disk

6. Connectors and Their Relative Jumpers

A. *Keyboard and Mouse Connector (CN11 and CN12)*

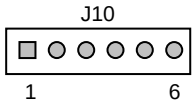
CN12 is a standard PS/2 type keyboard connector and any PS/2 type keyboard can plug into CN12 directly without extra adapter cable. CN11 provides PS/2 mouse interface, use optional mouse adapter cable to connect between CN11 and standard PS/2 mouse.



Pin 1: Mouse Data
Pin 2: Keyboard Data
Pin 3: Ground
Pin 4: VCC
Pin 5: Mouse Clock
Pin 6: Keyboard Clock

Note that CN11 and CN12 all support PS/2 keyboard and mouse signals and have to order 3-head cable from your supplier.

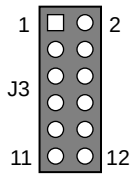
B. *Auxiliary Power Connector (J10)*



Pin 1: Ground
Pin 2: +5V
Pin 3: +5V
Pin 4: Ground
Pin 5: Ground
Pin 6: +12V

Note 1: J10 is ideal for standalone applications.
Note 2: +5V only, 2.5A Minimum.
Note 3: +12V is not necessary for this board running, it connects to LCD power connector (CN5) and cooling fan connector (J9) only.

C. *Multi-Fubction Header (J3, Including Reset, External Speaker, and Indicating LEDs)*



J3	Function	J3	Function
1	+5V (Ext. Speaker+ & LAN LED+)	2	-RESET (Reset Button-1)
3	Ext. Speaker-	4	Ground (Reset Button-2)
5	Ext. Speaker-	6	IDE Access LED+
7	Ext. Speaker-	8	IDE Access LED-
9	LAN TXLED-	10	PWR/WD LED+
11	LAN LKLED-	12	PWR/WD LED-

D. *Floppy Connector (CN3: 34-pin 2.54mm IDC)*

Use the included floppy cable (optional) will support 720KB, 1.44MB, and 2.88MB disk drives.

E. *Hard Disk Connector (CN2: 40-pin 2.54mm IDC)*

Use the included 40-pin hard disk cable, you can attach up to two 3.5" hard disk drives with CN2 connector.

F. *Parallel Port Connector (CN1: 26-pin 2.54mm IDC)*

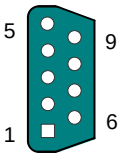
The included printer interface cable is used to transfer 26-pin connector into standard parallel port connector (D-sub 25-pin).

G. *Serial Port Connectors & Selector (DB2, CN4, CN8, CN10, JP1, JP8, JP9, and JP10)*

There are 4 connectors and 4 jumpers that served for on-board 4 serial ports. The following table and figure list the combination and pin definition of them:

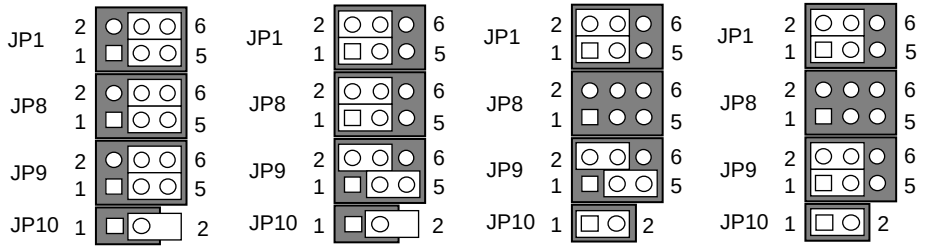
Functional connector, header, and jumper of serial ports	Serial Port 1	Serial Port 2	Serial Port 3	Serial Port 4
RS-232 Signals	DB2	CN4 and JP1/JP8/JP9/JP10	CN8	CN10
RS-422 Signals	-	CN4 and JP1/JP8/JP9/JP10	-	-
RS-485 Signals & Terminator	-	CN4 and JP1/JP8/JP9/JP10	-	-

DB2	Signals	CN4/CN8/CN10	D-sub 9	RS-232	RS-422	RS-485
1	-DCD1	1	1	-DCD2/3/4		-
6	-DSR1	2	6	-DSR2/3/4		-
2	RXD1	3	2	RXD2/3/4	RX-	485-
7	-RTS1	4	7	-RTS2/3/4	TX-	-
3	TXD1	5	3	TXD2/3/4	RX+	485+
8	-CTS1	6	8	-CTS2/3/4	TX+	-
4	-DTR1	7	4	-DTR2/3/4		-
9	-RI1	8	9	-RI2/3/4		-
5	Ground1	9	5	Ground2/3/4		
Metal	Case Ground	10	Metal	Case Ground		



DB2
(D-sub 9)

Note: Serial port 3 and 4 are optional, and it is necessary to use additional cable for standard 9-pin D-sub output.



RS-232 (JP10: Open)
Factory Preset

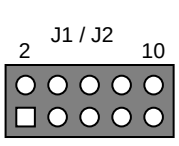
RS-422 (JP10: Open)

RS-485 w/o Terminator (JP8 all open)

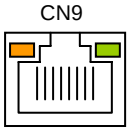
RS-485 with Terminator (JP8 all open)

H. *USB Connectors (J1 and J2), LAN Connector and LED Indicators (CN9: RJ45)*

J1 and J2 support 2 port USB signals each. Use the additional adapter cables (Optional) for your USB applications. CN9 is a RJ45 connector with 2 LEDs. The orange LED indicates data is accessing and the green LED indicates on-line status.

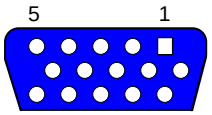


J1/J2	Signal	J1/J2	Signal
1	USBV0/USBV2	2	Case Ground
3	USBD0-/USBD2-	4	USBG1/USBG3
5	USBD0+/USBD2+	6	USBD1+/USBD3+
7	USBG0/USBG2	8	USBD1-/USBD3-
9	Case Ground	10	USBV1/USBV3



(Front View)

I. CRT Connector (DB1)



DB1 (D-sub 15)

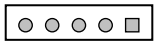
DB1	Signal	DB1	Signal
1	Red	13	Hsync
2	Green	14	Vsync
3	Blue	12	DDC Data
5, 10	Digital Ground	15	DDC Clock
6, 7, 8	Analog Ground	Others	Not Used

J. LCD Connectors (CN7, CN6, and CN5, Optional)

CN6	Signal	CN6	Signal
1	Ground	2	Y0+
3	Y0-	4	Ground
5	Y1+	6	Y1-
7	Ground	8	Y2+
9	Y2-	10	Ground
11	YCK+	12	YCK-
13	Ground	14	N.C.
15	N.C.	16	Ground
17	N.C.	18	N.C.
19	Ground	20	N.C.
21	N.C.	22	Ground
23	N.C.	24	N.C.
25	Ground	26	Ground
27	+3.3V	28	+3.3V
29	+5V	30	+5V

CN7 supports 24-bit TTL LCD signals, CN6 supports 24-bit LVDS LCD signals, and CN5 is the power connector for inverter board.

CN5

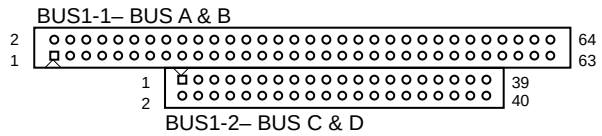


Pin 1: +12V
Pin 2: Ground
Pin 3: FPEN
Pin 4: N.C.
Pin 5: +5V

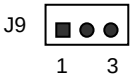
Note: If any question when connecting FB2400 with LCD panels, you could contact technical support division of FabiaTech Corporation.

CN7	Signal	CN7	Signal	CN7	Signal	CN7	Signal
1	+5V	21	FP12	2	+5V	22	FP13
3	Ground	23	FP14	4	Ground	24	FP15
5	+3.3V	25	FP16	6	+3.3V	26	FP17
7	N.C.	27	FP18	8	Ground	28	FP19
9	FP0	29	FP20	10	FP1	30	FP21
11	FP2	31	FP22	12	FP3	32	FP23
13	FP4	33	Ground	14	FP5	34	Ground
15	FP6	35	FPCLK	16	FP7	36	FPVS
17	FP8	37	FPDE	18	FP9	38	FPHS
19	FP10	39	ENVDD	20	FP11	40	ENAVEE

K. PC/104 Connectors (BUS1: 64-pin IDC & 40-pin IDC)



L. CPU Cooling Fan Connector (J9, Optional)



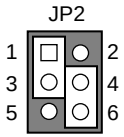
Pin 1: Ground
Pin 2: +12V
Pin 3: N. C.

M. TTL I/O Connector (J7: 18-pin 2.54mm IDC)

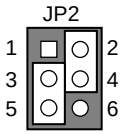
J7	TTL Lines	Bit Location	J7	TTL Lines	Bit Location
1	Ground	-	2	+3.3V	-
3	Output Line 0	Bit 0 of 78h	4	Input Line 0	Bit 0 of 79h
5	Output Line 1	Bit 1 of 78h	6	Input Line 1	Bit 1 of 79h
7	Output Line 2	Bit 2 of 78h	8	Input Line 2	Bit 2 of 79h
9	Output Line 3	Bit 3 of 78h	10	Input Line 3	Bit 3 of 79h
11	Output Line 4	Bit 4 of 78h	12	Input Line 4	Bit 4 of 79h
13	Output Line 5	Bit 5 of 78h	14	Input Line 5	Bit 5 of 79h
15	Output Line 6	Bit 6 of 78h	16	Input Line 6	Bit 6 of 79h
17	Output Line 7	Bit 7 of 78h	18	Input Line 7	Bit 7 of 79h

N. CompactFlash Socket and Master/Slave Select (CF1 and JP2)

The CompactFlash socket CF1 (on the solder side) supports 5V CompactFlash and MicroDrives. JP2 is used to select master/slave device of this socket and on-board Flash Disk.



CF1 Socket: Slave
Flash Disk: Master

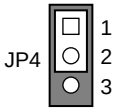


CF1 Socket: Master
Flash Disk: Slave
(Factory Preset)

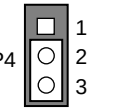
O. Internal/External Battery Select and Clear CMOS RAM (J5, J6, and JP4)

J5 is used to connect an external battery pack if on-board Lithium battery is too low to keep the CMOS data, and please set JP4 properly of on-board (internal) battery or external battery. Note that J6 allow you to clear CMOS data if necessary.

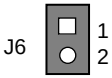
Pin 1: Battery+
Pin 2: Battery-
Note: 2.6V to 3.6V



On-Board Battery
Factory Preset

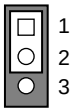


External Battery



Clear CMOS Data
(Short pin 1 & 2 for about 3 seconds)

P. SARM Memory Mapping Address Select Jumper (JP5, Reserved)



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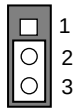

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Factory Preset

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