Quick Installation Guide

EmCORE-v611

3.5" form factor Embedded VIA
Eden CPU Core Module
with 128 MB SDRAM, CRT SVGA,
Dual Fast Ethernet, AC97 3D Audio,
PC/104 and Compact Flash Socket

Warning

Single Board Computers and their components contain very delicate Integrated Circuits (IC). To protect the Single Board Computer and its components against damage from static electricity, you should always follow the following precautions when handling it :

1. Disconnect your Single Board Computer from the power source when you want to work on the inside

2. Hold the board by the edges and try not to touch the IC chips, leads or circuitry

3. Use a grounded wrist strap when handling computer components.

4. Place components on a grounded antistatic pad or on the bag that came with the Single Board Computer, whenever components are separated from the system

Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by teh manufacturer (BR2335).

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local requlations concerning special waste.

Technical Support

If you have any technical difficulites, please consult the user's manual first at:

ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

http://www.arbor.com.tw

E-mail:info@arbor.com.tw

Specifications

General Specifications

- **CPU** : VIA Ultra Low Power Embedded Eden 667MHz processor (400 ~800 MHz for option) with FSB 66/100/133 MHz EBGA package.

- **Chipset** : VIA VT8606 TwisterT with Integrated Savage4 AGP 4X Graphics core and VT82C686B Super "South Bridge"

- **BIOS** : AWARD® Flash BIOS

- **Green Function** : power saving supported in BIOS. DOZE / STANDBY / SUSPEND modes, ACPI & APM

- **L1 Cache** : Integrated on CPU (128KB)

- **L2 Cache** : Integrated on CPU (64 KB)

- **DRAM Memory** : Onboard 128 (256MB option) SDRAM, and up to 512MB of SDRAM on SODIMM (Total of 768MB Memory)

- **Enhanced IDE with UltraDMA** : supports 1 port and up to 2 ATAPI devices, Ultra DMA transfer 33 / 66 and 100 MB/sec. One 40-pin (2.54 pitch) box header.

- **Watchdog Timer** : 127-level timer generates RESET or NMI when your application loses control over the system.

- **Real-time Clock** : built-in chipset with lithium battery backup. CMOS data backup of BIOS setup and BIOS default.

High Speed Multi I/O

- **Chipset**   : VIA VT82C686B

- **Serial Ports** : One high speed RS-232C ports (COM1). One high speed RS-232C/422/485 port COM2 (jumper selectable). Both with 16C550 compatible UART and 16 byte FIFO.

- **USB** : Two onboard USB ver 1.1 ports

- **SIR Interface** : onboard IrDA TX/RX port

- **Floppy Disk Drive Interface** : 2 floppy disk drives, 3½ " (720 KB, 1.44 MB or 2.88 MB).

- **Bi-directional Parallel Port** : SPP, EPP and ECP mode.

- **Keyboard and Mouse Connectors** : external PS/2 KB/Mouse port (2-in-1 mini DIN) onboard AT Keyboard port (5-pin box header)

- **Audio Chipset**: VIA VT82C686B, AC97 2.0 compliant, Multistream Direct Sound and Direct Sound 3D acceleration. (Line-in, CD Audio in, MIC in, Speaker out)

Network Interface Controller

- **Chipset** : 2 x   Realtek 8139C, 10/100 Mbps (EmCORE-v611VL2/R Series)

- **Connector** : Duak external RJ-45 with LEDs on bracket

Display Controller

- **Chipset** : 4x AGP S3 Savage4 3D and S3 Savage 2000 2D engines integrated in VT8606 supports up to 32MB of Shared Memory

- **Display Type** : CRT (VGA, SVGA, XGA, SXGA) and LCD Type

- **Connectors** : external DB15 for CRT on bracket

- **Resolution**: Single Channel of LVDS / 36-bit of TTL and 12-bit of TMDS; all resolutions are supported up to 1280x1024.

Flash Disk

- **Compact Flash Card (CFC)**

    - **Compact Flash Socket :** supports Type I/II CFC

    - **Capacity** : up to 512MB CFC

Environmental and Power

- **Power Requirements** : +5 V @ 1.8 A (typical), +12 V @ 0.13A (typical) ;(Low Power Embedded 667MHz and 128MB SDRAM)

- **System Monitoring and Alarm** : CPU and System temperature, system voltage and cooling fan RPM.

- **Board Dimensions** : 145mm x 102mm

- **Board Weight :** 0.18kg

- **Operating Temperature** : 0 to 60°C (32 to 140°F)

Packing list

Before you begin installing your single board, please make sure that the following materials have been shipped:

> 1 x EmCORE-v611 3.5" Embedded VIA Eden SBC

> 1 x Quick Installation Guide

> 1 x CD-ROM (for driver used)

Optional

> 1 x Cable Kits (CBK-09-0611-00) contains the followings:

    . 2 x USB Port Cable

    . 1 x Parallele Port Cable

    . 1 x IDE Flat Cable

    . 2 x Serial Port Cable

    . 1 x Audio Cable

    . 1 x FDD Cable

    . 1 x Keyboard / PS2 Mouse Cable

    . 2 x LAN Cable (RJ45 cable)

    . 2 x LAN Cable Cover (RJ45 Cover)

    . 1 x VGA Cable

    . 1 x Power Cable (for ATX power)

Ordering Codes

EmCORE-v611VL2R/E533	3.5" form factor Embedded VIA Eden 533MHz Single Board Computer with 128MB SDRAM, CRT SVGA, Dual Fast Ethernet, AC97 3D Audio, PC/104 and Compact Flash Socket
EmCORE-v611VL2R/E667	3.5" form factor Embedded VIA Eden 667MHz Single Board Computer with 128MB SDRAM, CRT SVGA, Dual Fast Ethernet, AC97 3D Audio, PC/104 and Compact Flash Socket
EmCORE-v611VL2R/E800	The same as above with VIA Eden 800MHz CPU (option)

Board Layout Front

SDRAM

SDRAM

SO-DIMM SOCKET
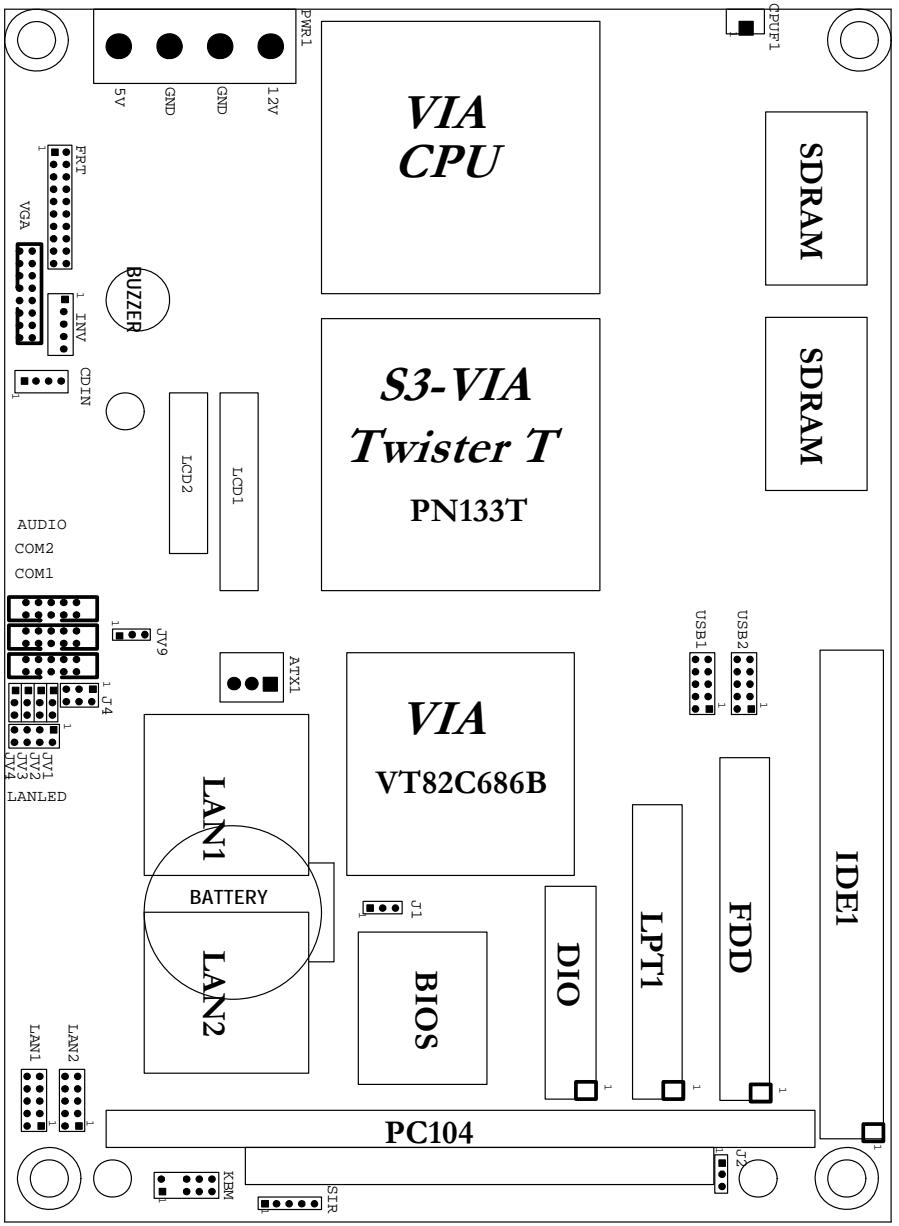
COMPACT FLASH
CARD SOCKET
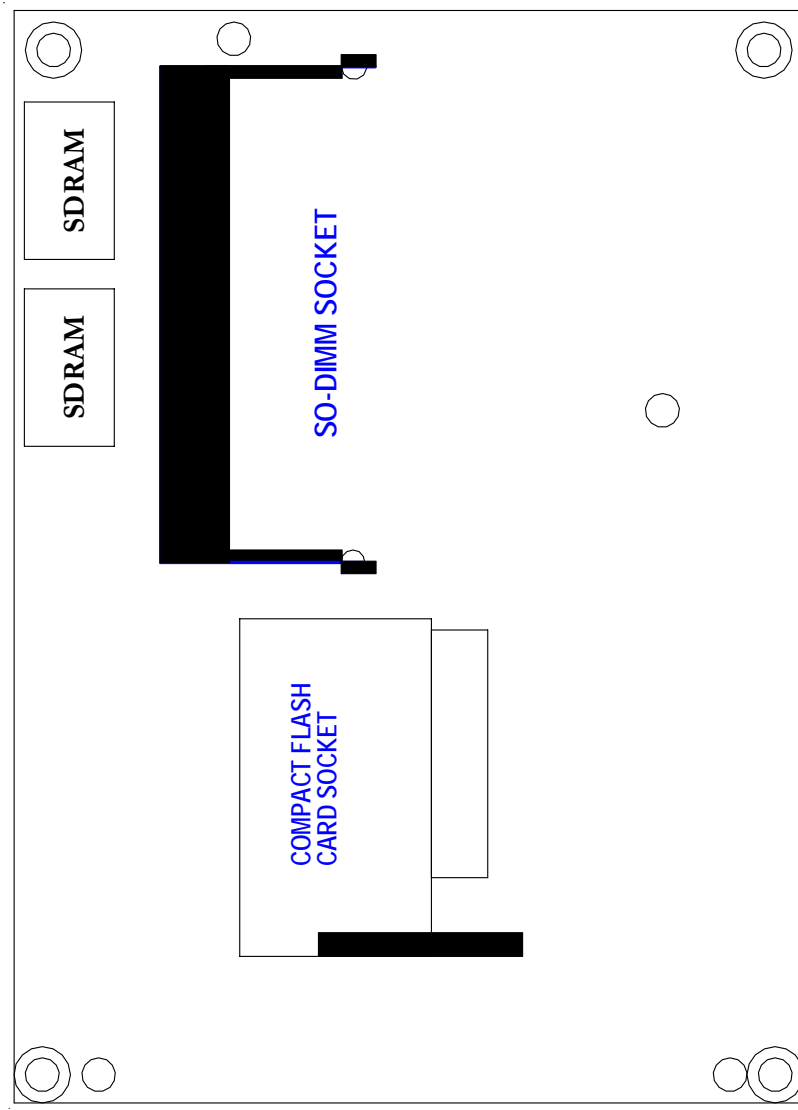
Jumper/Connector Quick Reference

Jumpers

Lable	Function	Page
J1	Clear CMOS	9
J2	Watchdog Timer	9
J4	RS-232 / 422 / 485 Selection	10
JV1-4	RS232 Mode Select	11
JV9	LCD Power Selected	11

Jumper/Connector Quick Reference

Connectors

Lable	Function	Page
ATX1	ATX Feature Connectorr	13
COM1	Serial Port: COM1	5
COM2	Serial Port: COM2	5
CPUF1	CPU FAN1 Connector	13
ESMI	External SMI	14
ESPK	External Speaker	14
FDD	Floppy Disk Driver Connector	5
HLED	HDD LED Connector	14
IDE1	Primary IDE Connector	5
KBM(PS2)	PS/2 Keyboard & Mouse	5
LAN1	10/100M LAN1 Connector	5
LAN2	10/100M LAN2 Connector	5
LANLED	LANLED	12
LPT1	Parallel Port	5
PLKL	Power LED & Keyboard Lock	14
PSON	ATX Soft Power Switch	14
DIO	16-bit GPIO	12
CFA1	Compact Flash Disk	6
PC104	ISA PC-104 Interface	5
LCD1	LCD Connector for TTL (under 24bit)	5
LCD2	LCD Connector for LVDS	5
INV	LCD Invertor connector	5
CDIN	CDROM Audio Interface	5
AUDIO	Audio Interface Port	5
SODIM1	SODIMM Socket	6
SIR	Infrared (IR) Connector	5
RES	Reset Connector	14
USB1	USB Port 0,1	5
USB2	USB Port 2,3	5
VGA	CRT SVGA Connector	5
PWR1	Power Connector	13

CMOS Jumper Settings

CMOS Operation (J1)
Type : J1: onboard 3-pin header

If the EmCORE-v611 refuses to boot due to inappropriate CMOS settings here is how to proceed to clear (reset) the CMOS to its default values.

CMOS Setup (J1)		J1	
Normal Operation		1-2	ON
Clear CMOS		2-3	ON
default setting	1-2		

Watchdog Timer

Mode Setting (J2)

Watchdog Mode	J2	Status
IOCHK (Active NMI)	1-2	ON
RESET	2-3	ON
Disable Watchdog Timer	OFF	
default setting 2-3 ON		

Serial Port Selection (RS232C/422/485)

RS-232/422/485 Mode select (J4)
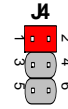
RS-422/485 Mode on COM2

The onboard COM2 port can be configured to operate in RS-422 or RS-485 modes. RS-422 modes differ in the way RX/TX is being handled. Jumper J4 switches between RS-232 or RS-422/485 mode. When J4 is set to RS-422 or 485 mode, there will be only +12V output left while J4 is set. All of the RS-232/422/485 modes are available on COM2.

COM2

Pin Defined:	RS232	RS422	RS485
Pin1 :	DCD	Tx+	RTx+
Pin2 :	RXD	Tx-	RTx-
Pin8 :	CTS	Rx+	x
Pin9 :	RI	Rx-	x

J4 Selection	1-2	3-4	5-6
RS-232C	ON	OFF	OFF
RS-422	OFF	ON	OFF
RS-485	OFF	OFF	ON

default setting   RS-232

Voltage select

LCD Voltage Select (JV9)

JV1	LCD Voltage	
1-2	->	3.3 V
2-3	->	5 V

JV9

RS-232c Standard and POS Modes (JV1~JV4)

All onboard COM ports can be configured to operate in standard RS-232c mode or in POS (Point-of-Sale) RS-232c mode. POS devices normally need an additional power supply signal (5V or 12V) to be able to power the device (LCD, cash drawer or printer) without additional wiring.

There are three seperate POS modes :
- RS-232 with 5V on pin 1
- RS-232 with 12V on pin 9
- RS-232 with 5V on pin 1 and 12V on pin 9

JV1
JV2
JV3
JV4

COM1 RS-232 Mode	JV1	JV2
Standard	1-2	1-2
POS : 12 V on pin 9	2-3	1-2
POS : 5 V on pin 1	1-2	2-3
POS : 5 V on pin 1 and 12 V on pin 9	2-3	2-3

COM2 RS-232 Mode	JV3	JV4
Standard	1-2	1-2
POS : 12 V on pin 9	2-3	1-2
POS : 5 V on pin 1	1-2	2-3
POS : 5 V on pin 1 and 12 V on pin 9	2-3	2-3

16-bit Digital I/O

16-bit General Purpose I/O (DIO1)

Connector : **DIO1**
Type : Onboard 20-pin header

Output Port I/O Address: 208hex and from Pin1 to Pin8
Input Port I/O Address: 200hex and from Pin11 to Pin18

Digital Output

Logic Level 0: 0.5V (max)

Logic Level 1: 2.0V (min)

Output Current per pin: ±25mA (max)

Digital Input

Logic Level 0: 0.8V (max)

Logic Level 1: 2.0V (min)

Pin	Description	Pin	Description
1	DO0	2	DO1
3	DO2	4	DO3
5	DO4	6	DO5
7	DO6	8	DO7
9	GND	10	GND
11	DI0	12	DI1
13	DI2	14	DI3
15	DI4	16	DI5
17	DI6	18	DI7
19	+5V	20	+12V

LANLED Connector

Connector: LANLED
Type : 8-pin onboard Wafer connector

Pin	Description	Pin	Description
1	LAN1_Link	2	3VSB
3	LAN1_ACT	4	3VSB
5	LAN2_Link	6	3VSB
7	LAN2_ACT	8	3VSB

Power Connector

ATX power control (ATX1)

Type : 3-pin onboard Wafer connector

```
3 2 1
ATX1
```

Pin	Description
1	PS-ON
2	GND
3	+5VSB (Standby)

Power Connector (PWR1)

Connector : **PWR1**
Type : 4 pin

Pin	Description	Pin	Description
1	+12V	2	GND
3	GND	4	+5V

CPU Fan Connector

CPUF1

```
1 2 3
```

Connector : **CPUF1**
Type : onboard 3-pin wafer connector

Pin	Description
1	FAN_CTL
2	+5V
3	GND

Switches and Indicators


```
                              1 2
Power Switch    GND     ( O  O )    PWRBT
Reset Switch    GND     ( O  O )    RESET
SMI Switch      GND     ( O  O )    SMI
HDD LED       (+) Vcc   ( O  O )    Active
                NC      ( O  O )    NC
                NC      ( O  O )    NC
              (+) Vcc   ( O  O )
                NC      ( O  O )    GND
Speaker         NC      ( O  O )    NC       POWER LED
              SPKIN     ( O  O )  (+) Vcc
                            19 20
```
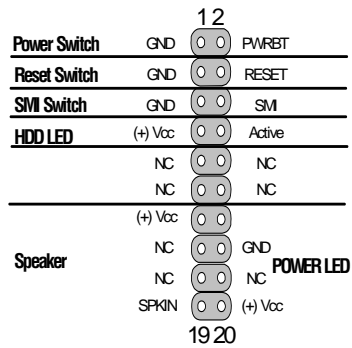
Connector : **FRT**
Type : onboard 20-pin header

Pin	Jumper	Description
1-2	Power Switch	ATX soft power switch
3-4	Reset Switch	reset function
5-6	SMI Switch	external SMI
7-8	HDD LED	Hard Disk LED
13,15,17,19	SPKE	exteranal speaker
16,18,20	PWRLED	power LED