Operating Guide

EPIA-M800 Mainboard

Table of Contents

Table of Contents i
VIA EPIA-M800 Overview 1
VIA EPIA-M800 Layout 2
VIA EPIA-M800 Specifications 3
VIA EPIA-M800 Processor SKUs 4
VIA VX800 Chipset Overview 5
VIA EPIA-M800 Dimensions 6
VIA EPIA-M800 Height Distribution 7
VIA EPIA-M800 Side Profile 8
Power Consumption 9
VIA EPIA-M800-16 9
A. Playing DVD – Power DVD 5.0 9
B. Playing MP3 – Media Player 9
C. Running Network Application (LAN1) – Files Copy 9
D. Running Network Application (LAN2) – Files Copy 9
E. Idle 10
F. Running C.C. Winstone 2004 10
G. S3 mode 10
VIA EPIA-M800-12E 11
A. Playing DVD – Power DVD 5.0 11
B. Playing MP3 – Media Player 11
C. Running Network Application (LAN1) – Files Copy 11
D. Running Network Application (LAN2) – Files Copy 11
E. Idle 11
F. Running C.C. Winstone 2004 12
G. S3 mode 12
Power Specifications 13
VIA EPIA-M800 Microsoft and Linux Driver Support 14
Microsoft Driver Support 14
Linux Driver Support 14
Contact 15

VIA EPIA-M800 Overview

The VIA EPIA-M800 Mini-ITX Mainboard is a compact native x86 mainboard optimized for entry level systems in embedded and productivity applications. The mainboard is based on the VIA VX800 Unified Digital Media IGP chipset featuring the VIA Chrome9™ HC3 with 2D/3D graphics and video accelerators for rich digital media performance.

The VIA EPIA-M800 includes a powerful, secure, and efficient VIA Nano™ NanoBGA2 processor. The VIA Nano processor includes the VIA Padlock Security Engine, VIA CoolStream™ Architecture, VIA StepAhead™ Technology Suite, and VIA TwinTurbo™ technology.

The VIA EPIA-M800 supports up to 2 GB of 667/533 MHz DDR2 memory. The VIA EPIA-M800 provides support for high fidelity audio with its included VIA VT1708S High Definition Audio codec. In addition it supports two SATA (3.0 Gbps) storage device. Other supported storage includes CompactFlash and IDE.

The VIA EPIA-M800 is compatible with a full range of Mini-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies. The VIA EPIA-M800 is fully compatible with Microsoft® and Linux operating systems.

VIA EPIA-M800 Layout

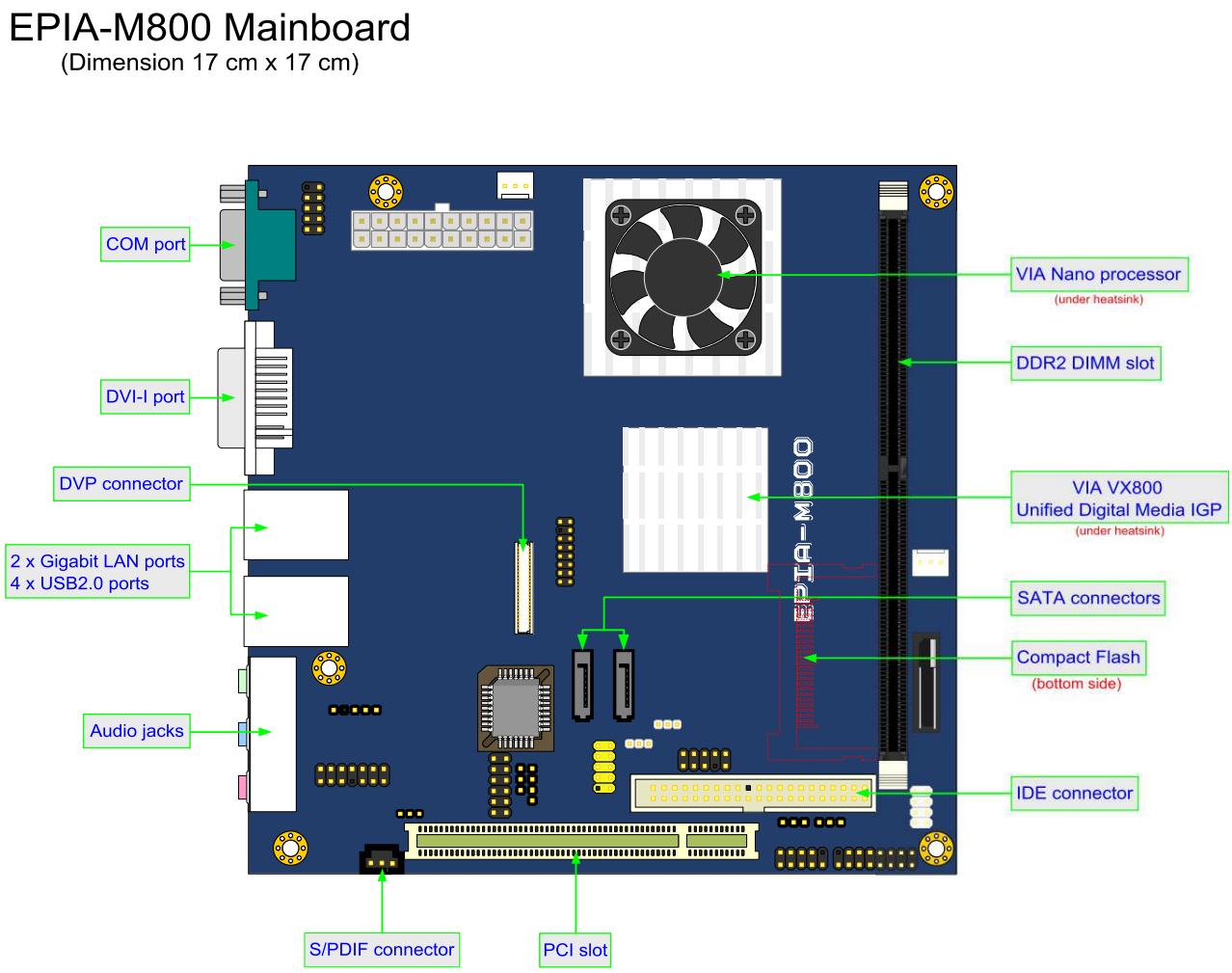


Figure 1: EPIA-M800 layout

VIA EPIA-M800 Specifications

Model Name	EPIA-M800-16	EPIA-M800-12E
Processor	- VIA Nano 1.3+GHz NanoBGA2 processor (800 MHz FSB)	- VIA Nano 1.2 GHz NanoBGA2 processor (800 MHz FSB) with fanless heatsink
Chipset	- VIA VX800 Unified Digital Media IGP Chipset	
System Memory	- 1 x DDR2 667/533 DIMM slot - Up to 2 GB memory size	
VGA	- Integrated VIA Chrome9™ HC3 DX9 3D/2D Graphics and Unified Video Decoding Acceleration	
Onboard IDE	- 1 x UltraDMA 133/100/66/33 pin connector	
Onboard LAN	- 2 x VIA VT6130 PCIe Gigabit LAN controller	
Onboard Audio	- VIA VT1708S High Definition Audio Codec	
Onboard I/O Connectors	- 1 x USB pin header for two additional USB 2.0 ports - 1 x Front-panel audio pin header for headphone-out/MIC-in or amplifier module - 1 x S/PDIF out connector - 1 x Digital video input pin header for CCIR-656/601/transport stream video - 1 x Digital video output pin header for HDMI transmitter, DVI transmitter (different add-on card is required for different function) or 18-bit TTL (when onboard DVI is disabled) - 1 x CF (CompactFlash) Type I connector (shared with IDE) - 1 x MFX pin header - 1 x SPI pin header - 1 x Digital I/O pin header - 1 x KB/MS pin header - 1 x SIR pin header (IRDA 1.0) - 1 x Serial port pin header - 1 x System temperature reading pin header - 1 x Front-panel pin header - 1 x ATX power connector - 2 x SATA connectors - 2 x Fan connectors for CPU and system fans	
Expansion Slot	- 1 x PCI slot	
Back Panel I/O	- 1 x COM (Serial) port - 1 x DVI-I port - 2 x RJ-45 LAN ports - 4 x USB 2.0 ports - 3 x Audio jacks for Line-out, Line-in, and MIC-in (horizontal type, Smart 5.1 support)	
BIOS	- Award BIOS - SPI 4/8 Mbit flash memory	
Operating System	Windows XP, Linux, WinCE, XPe	
System Monitoring & Management	- CPU voltage monitoring, System temperature reading - Wake-on-LAN, Keyboard power-on, RTC Timer power-on, Watch Dog Timer - Fan speed detection - System power management - AC Power failure recovery	
Operating Temperature	0°C ~ 60°C	
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)	
Form Factor	- Mini-ITX - 17 cm x 17 cm	

Note: This specification is subject to change without prior notice.

VIA EPIA-M800 Processor SKUs

The VIA EPIA-M800 is available in two speed grades as follows:

- 1.3+GHz VIA Nano Processor
- 1.2 GHz VIA Nano Processor

VIA VX800 Chipset Overview

The VIA VX800 Unified Digital Media Chipset is designed to enable high quality digital video streaming and DVD playback in a new generation of fanless, small form factor PCs and IA devices. The VIA VX800 features VIA Chrome9™ HC3 with 2D/3D graphics and video acceleration, DDR2 667/533 MHz support, motion compensation and dual display support to ensure a rich overall entertainment experience. Outstanding connectivity features include USB 2.0, GbE LAN, SATA (3.0 Gbps), and ATA/133.

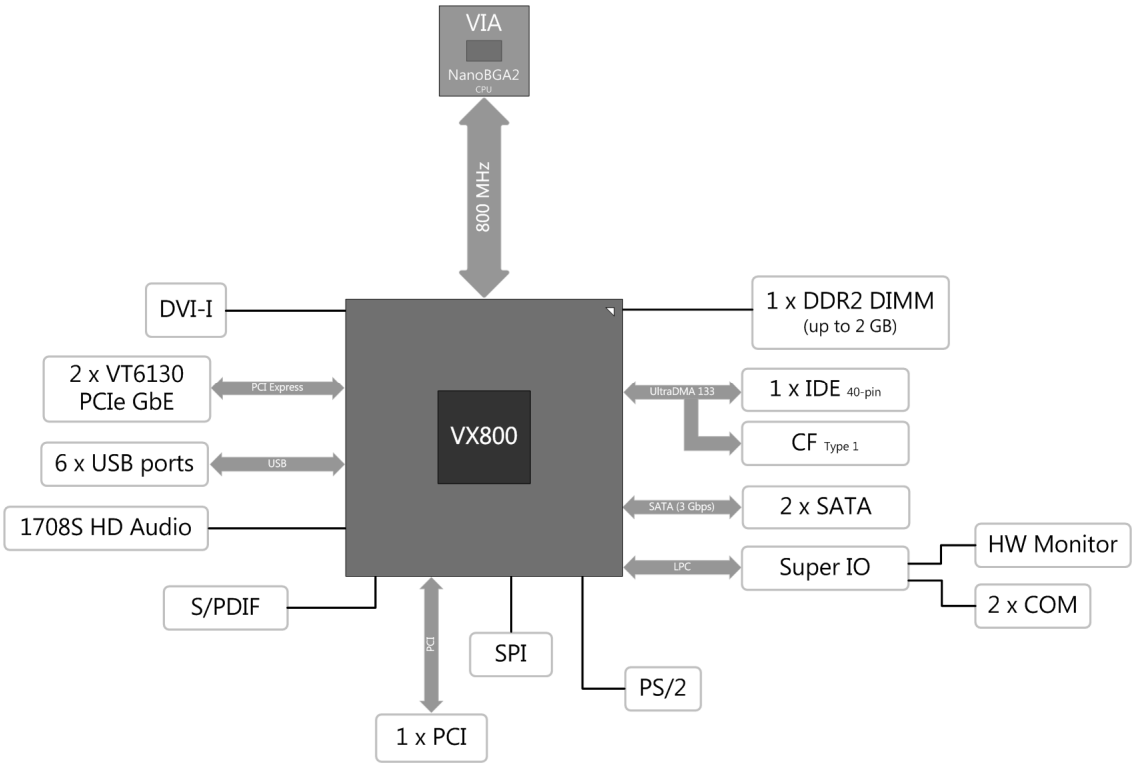


Figure 2: VX800 as implemented in EPIA-M800

VIA EPIA-M800 Dimensions

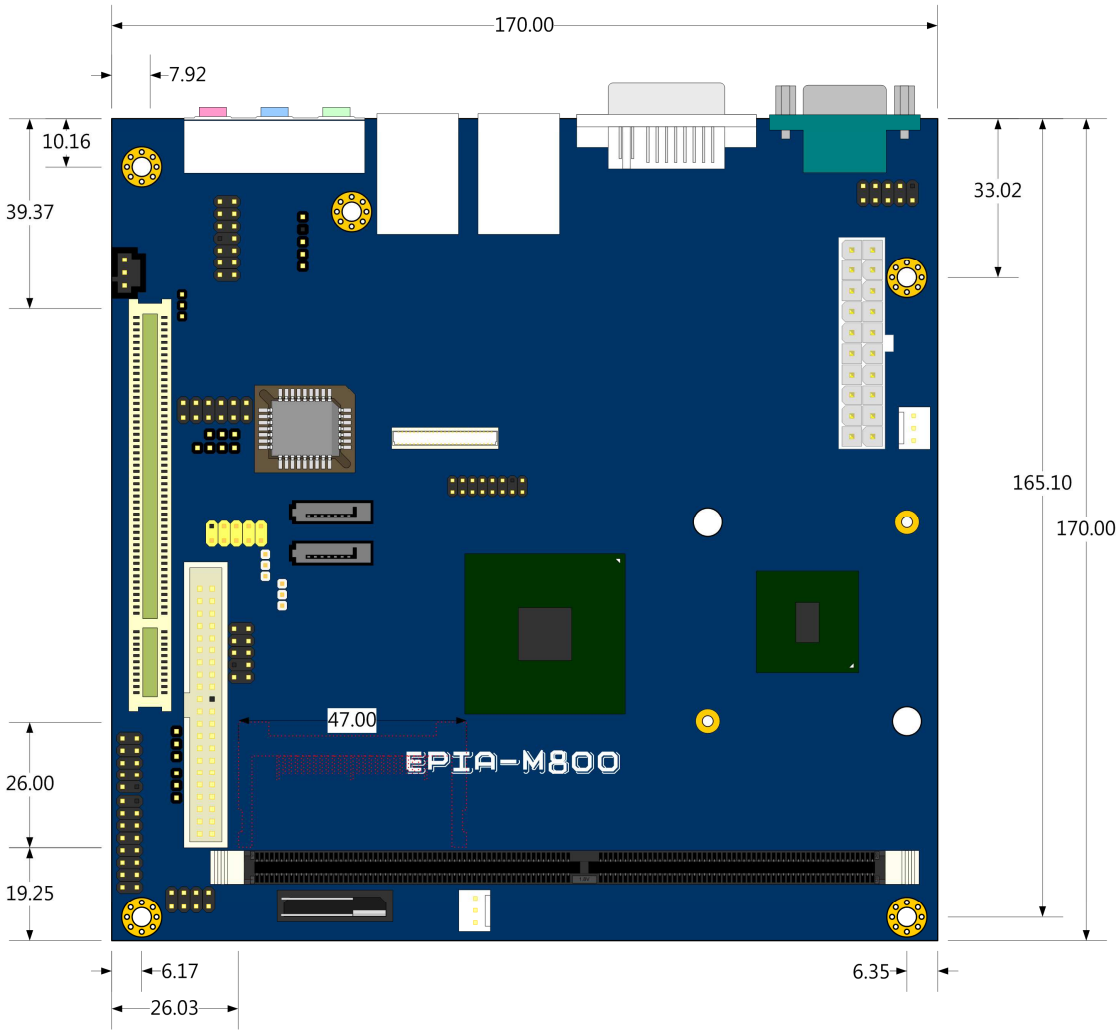
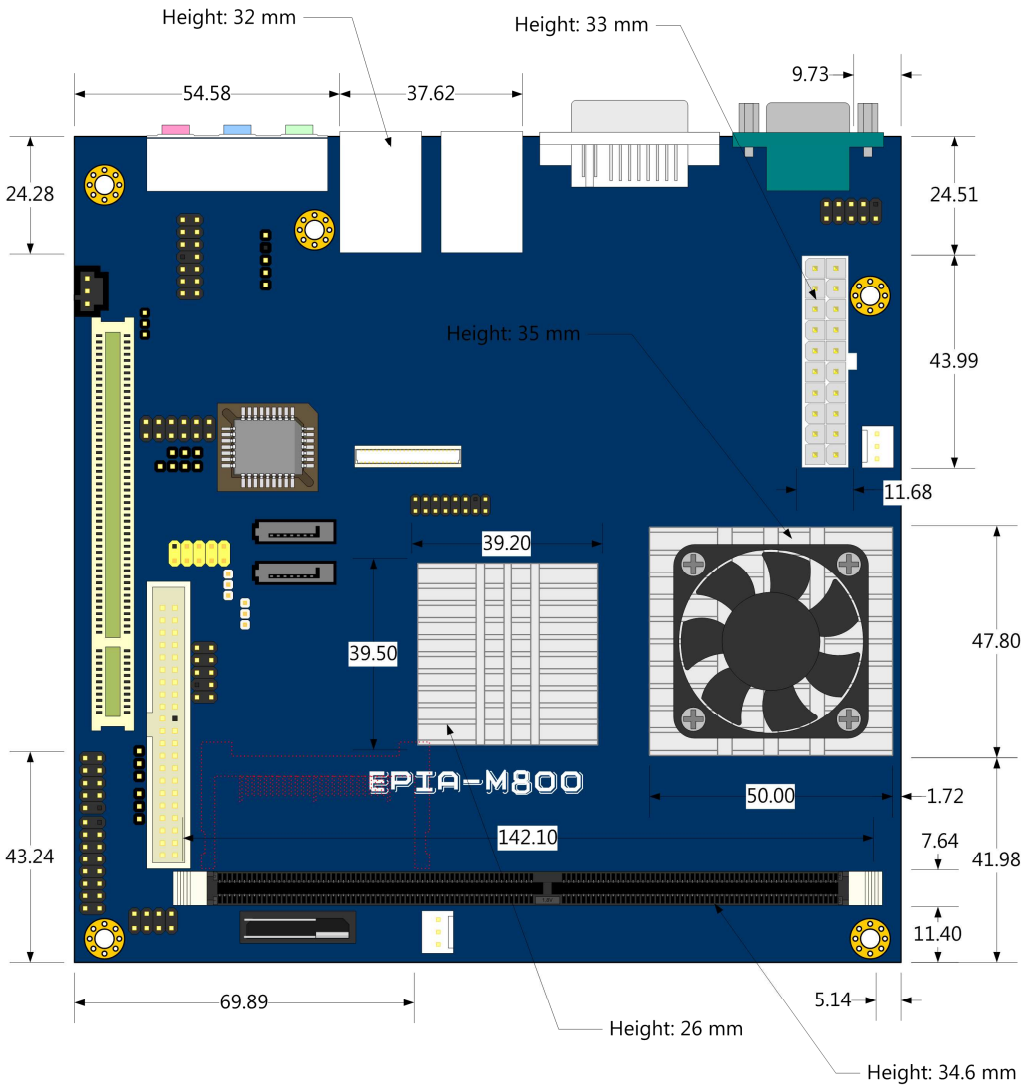


Figure 3: EPIA-M800 mounting layout and dimensions

VIA EPIA-M800 Height Distribution



Top side: all other height is under 21 mm
Bottom side: CF connector height 5.8 mm

Figure 4: EPIA-M800 height distribution

VIA EPIA-M800 Side Profile

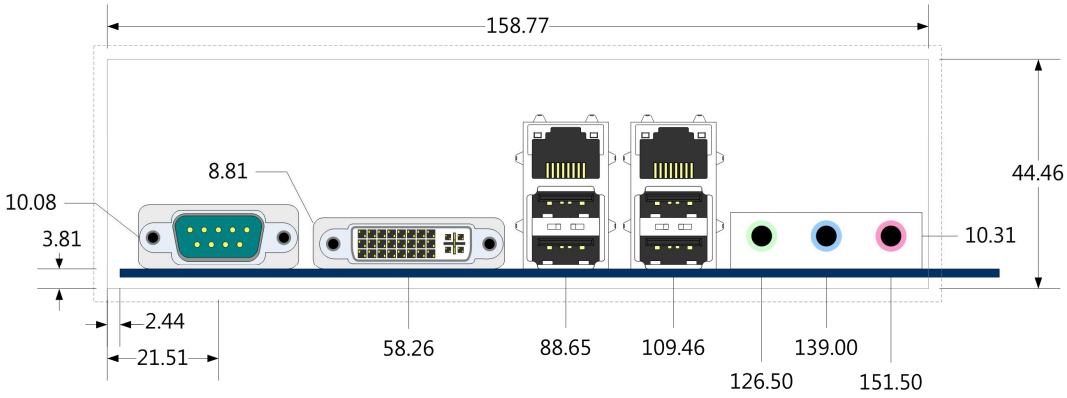


Figure 5: EPIA-M800 back panel ports

Power Consumption

Power consumption tests were performed on the VIA EPIA-M800 for both processor options. The following tables are a comprehensive breakdown of the voltage, amp and wattage values while running common system applications.

VIA EPIA-M800-16

A. Playing DVD – Power DVD 5.0

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.285	0.893	2.934
Main Board +5V	5.001	2.962	14.813
Main Board 5VSB	4.928	0.164	0.808
Main Board +12V	12.009	0.095	1.141
		Total Power Consumption	19.696

B. Playing MP3 – Media Player

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.285	0.901	2.958
Main Board +5V	4.989	3.604	17.980
Main Board 5VSB	4.925	0.164	0.808
Main Board +12V	12.019	0.094	1.130
		Total Power Consumption	22.876

C. Running Network Application (LAN1) – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.285	0.924	3.035
Main Board +5V	5.008	2.766	13.852
Main Board 5VSB	4.934	0.134	0.661
Main Board +12V	12.008	0.094	1.129
		Total Power Consumption	18.677

D. Running Network Application (LAN2) – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.284	0.954	3.133
Main Board +5V	5.012	2.663	13.347
Main Board 5VSB	4.936	0.133	0.656
Main Board +12V	12.007	0.096	1.153
		Total Power Consumption	18.289

E. Idle

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.296	0.927	3.055
Main Board +5V	5.030	2.172	10.925
Main Board 5VSB	4.941	0.133	0.657
Main Board +12V	12.007	0.100	1.201
		Total Power Consumption	15.838

F. Running C.C. Winstone 2004

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.268	0.842	2.752
Main Board +5V	4.955	4.450	22.050
Main Board 5VSB	4.917	0.134	0.659
Main Board +12V	12.011	0.090	1.081
		Total Power Consumption	26.541

G. S3 mode

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	4.963	0.343	1.702
Main Board +12V	0.000	0.000	0.000
		Total Power Consumption	1.702

VIA EPIA-M800-12E

A. Playing DVD – Power DVD 5.0

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.291	0.946	3.113
Main Board +5V	5.026	2.112	10.615
Main Board 5VSB	4.938	0.159	0.785
Main Board +12V	11.977	0.098	1.174
		Total Power Consumption	15.687

B. Playing MP3 – Media Player

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.292	0.966	3.180
Main Board +5V	5.021	2.387	11.985
Main Board 5VSB	4.939	0.159	0.785
Main Board +12V	11.982	0.098	1.174
		Total Power Consumption	17.125

C. Running Network Application (LAN1) – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.293	0.995	3.277
Main Board +5V	5.034	1.883	9.479
Main Board 5VSB	4.945	0.129	0.638
Main Board +12V	11.976	0.097	1.162
		Total Power Consumption	14.555

D. Running Network Application (LAN2) – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.291	1.006	3.311
Main Board +5V	5.032	1.958	9.853
Main Board 5VSB	4.944	0.129	0.638
Main Board +12V	11.976	0.099	1.186
		Total Power Consumption	14.987

E. Idle

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.299	0.965	3.184
Main Board +5V	5.042	1.678	8.460
Main Board 5VSB	4.948	0.131	0.648
Main Board +12V	11.974	0.103	1.233
		Total Power Consumption	13.526

F. Running C.C. Winstone 2004

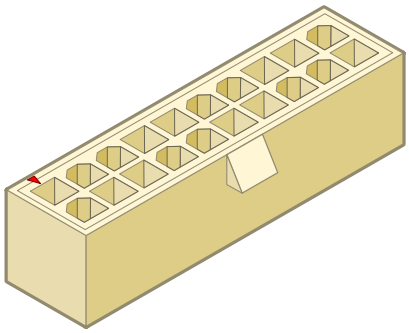
	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.304	0.026	0.086
Main Board +5V	5.015	2.530	12.688
Main Board 5VSB	4.938	0.131	0.647
Main Board +12V	11.967	0.098	1.173
		Total Power Consumption	14.593

G. S3 mode

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	4.967	0.342	1.699
Main Board +12V	0.000	0.000	0.000
		Total Power Consumption	1.699

Power Specifications

The VIA EPIA-M800 mainboard utilizes utilizes an industry standard 20-pin ATX power connector for connecting to the power supply. Due to its ultra low power requirements, a 90 – 120 Watt ATX power supply is ample for even the heaviest of multimedia system applications.



Pin	Signal	Pin	Signal
1	+3.3V	**11**	+3.3V
2	+3.3V	**12**	-12V
3	Gnd	**13**	Gnd
4	+5V	**14**	PS_ON
5	Gnd	**15**	Gnd
6	+5V	**16**	Gnd
7	Gnd	**17**	Gnd
8	PW_OK	**18**	-5V
9	+5V_SB	**19**	+5V
10	+12V	**20**	+5V

VIA EPIA-M800 Microsoft and Linux Driver Support

MICROSOFT DRIVER SUPPORT

The VIA EPIA-M800 mainboard is compatible with Microsoft operating systems. The latest Windows 2000 and Windows XP drivers can be downloaded from the VEPD website at www.viaembedded.com.

For embedded operating systems (Windows CE and Windows XP Embedded), the related drivers can be found in the VIA Embedded website at www.viaembedded.com.

LINUX DRIVER SUPPORT

The VIA EPIA-M800 mainboard is highly compatible with many Linux distributions.

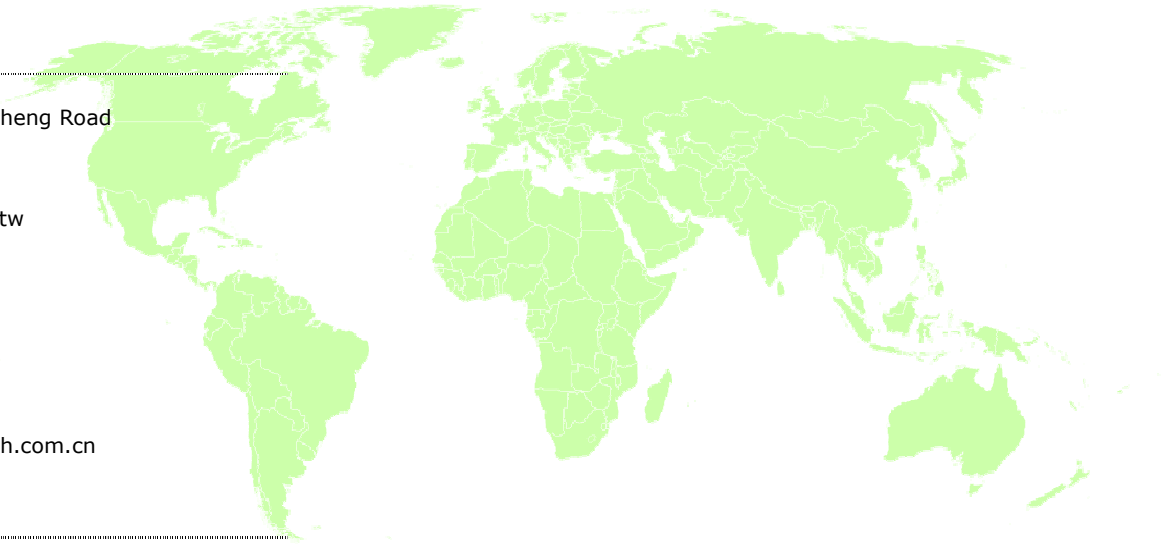
Support and drivers are provided through various methods including:

- Drivers provided by VIA
- Using a driver built into a distribution package
- Visiting www.viaembedded.com for the latest updated drivers
- Installing a third party driver (such as the ALSA driver from the Advanced Linux Sound Architecture project for integrated audio)

For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. You can submit a request to your VEPD support contact.

Contact

For more information on the VIA EPIA-M800 Mini-ITX mainboard contact your sales representative or visit our website at www.viaembedded.com



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