Operating Guide

EPIA-M830 Mainboard

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VIA EPIA-M830 Overview

The VIA EPIA-M830 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 C-9 HC3 with 2D/3D graphics and video accelerators for rich digital media performance.

The VIA EPIA-M830 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-M830 supports up to 2 GB of 533/667 MHz DDR2 memory. The VIA EPIA-M830 provides support for high fidelity audio with its included VIA VT1708S High Definition Audio codec. In addition it supports two SATA 3Gb/s storage devices as well as IDE.

The VIA EPIA-M830 is compatible with a full range of Mini-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies. The VIA EPIA-M830 is fully compatible with Microsoft® and Linux operating systems.

VIA EPIA-M830 Layout

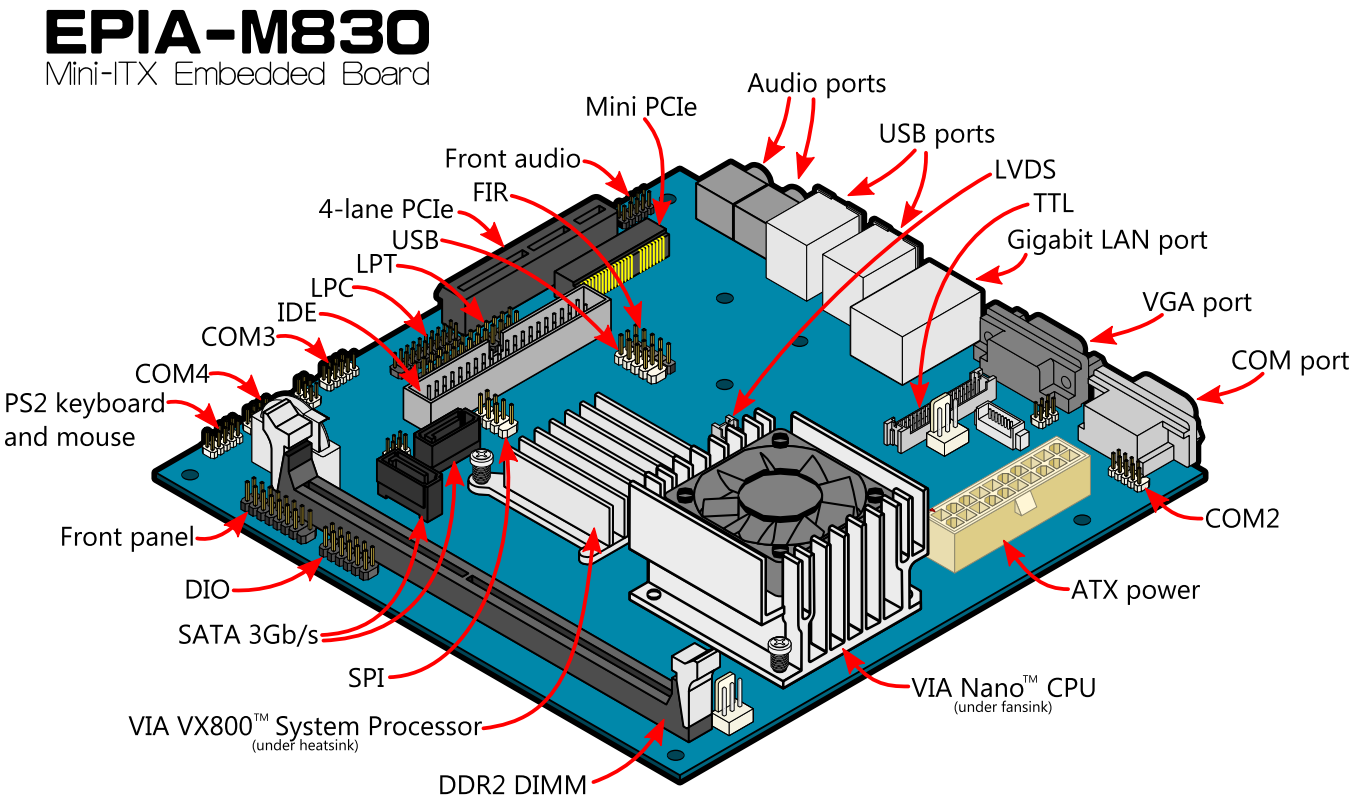


Figure 1: EPIA-M830 layout

VIA EPIA-M830 Specifications

Model Name	EPIA-M830-13	EPIA-M830-10
Processor	- VIA Nano 1.3 GHz NanoBGA2 processor (heatsink with fan)	- VIA Nano 1.0 GHz NanoBGA2 processor (fanless heatsink)
Chipset	- VIA VX800 Unified Digital Media IGP Chipset	
Super I/O	- VIA VT1211 (manufacturing option)	
System Memory	- 1 x DDR2 533/667 DIMM slot - Up to 2 GB memory size	
VGA	- Integrated VIA C-9 HC3 DX9 3D/2D Graphics and Unified Video Decoding Acceleration	
Onboard IDE	- 1 x UltraDMA 133/100 40-pin connector (2.54 mm)	
Onboard SATA	- 2 x SATA connectors with configurable pin 7 (GND/5V)	
Onboard LAN	- VIA VT6130 PCIe Gigabit LAN controller	
Onboard Audio	- VIA VT1708S High Definition Audio Codec	
Onboard I/O Connectors	- 1 x USB pin header - 1 x Front audio pin header - 1 x Audio Line-in pin header - 1 x PS2 keyboard/mouse pin header - 1 x RS232 pin header (configurable 5V/12V) * 2 x RS232 pin header (configurable 5V/12V) * 1 x LPT pin header - 1 x LPC pin header - 1 x SMBUS pin header - 1 x S/PDIF out connector * 1 x FIR pin header * 1 x Digital I/O pin header (GPI x4, GPO x4) - 1 x Front-panel pin header - 2 x Fan connectors for CPU and system fans - 1 x 18-bit TTL reserved (DVP, manufacturing option) - 1 x Dual-channel 24-bit LVDS (manufacturing option) - 1 x ATX power connector	
Expansion Slot	- 1 x 4-lane PCIe slot - 1 x Mini PCIe socket (or USB device)	
Back Panel I/O	- 1 x RS232 COM port - 1 x VGA port - 1 x RJ-45 LAN port - 4 x USB 2.0 ports - 2 x Audio jacks for Line-out and Mic-in	
BIOS	- Award BIOS - 4/8Mbit SPI flash ROM	
Operating System	Windows XP, Linux, WinCE, XPe	
System Monitoring & Management	- Wake-on-LAN, Keyboard power-on, RTC Timer power-on, Watch Dog Timer - System power management - AC Power failure recovery	
Operating Temperature	0˚C ~ 50˚C	
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)	
Form Factor	- Mini-ITX (17 cm x 17 cm)	
Compliance	CE/FCC/KC/RoHS	

* Only available with VT1211 manufacturing option

** This specification is subject to change without prior notice.

VIA EPIA-M830 Processor SKUs

The VIA EPIA-M830 is available in two speed grades as follows:

- 1.3 GHz VIA Nano Processor
- 1.0 GHz VIA Nano Processor (fanless)

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 C-9 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 3Gb/s, and ATA/133.

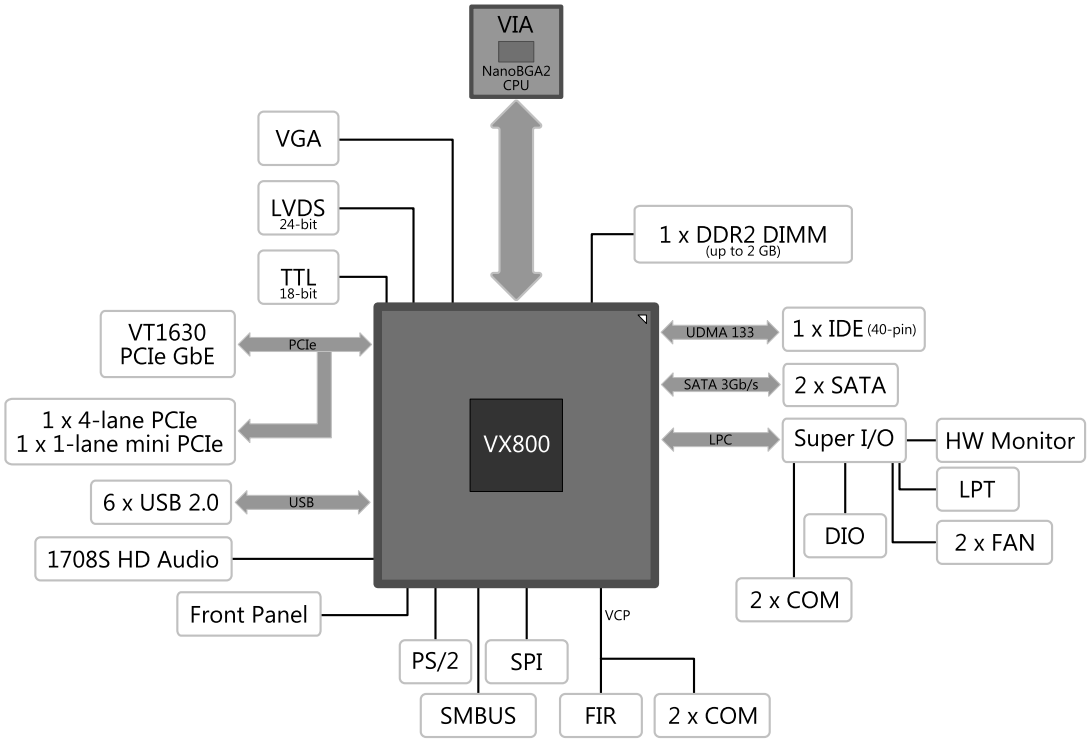


Figure 2: VX800 as implemented in the EPIA-M830

VIA EPIA-M830 Dimensions

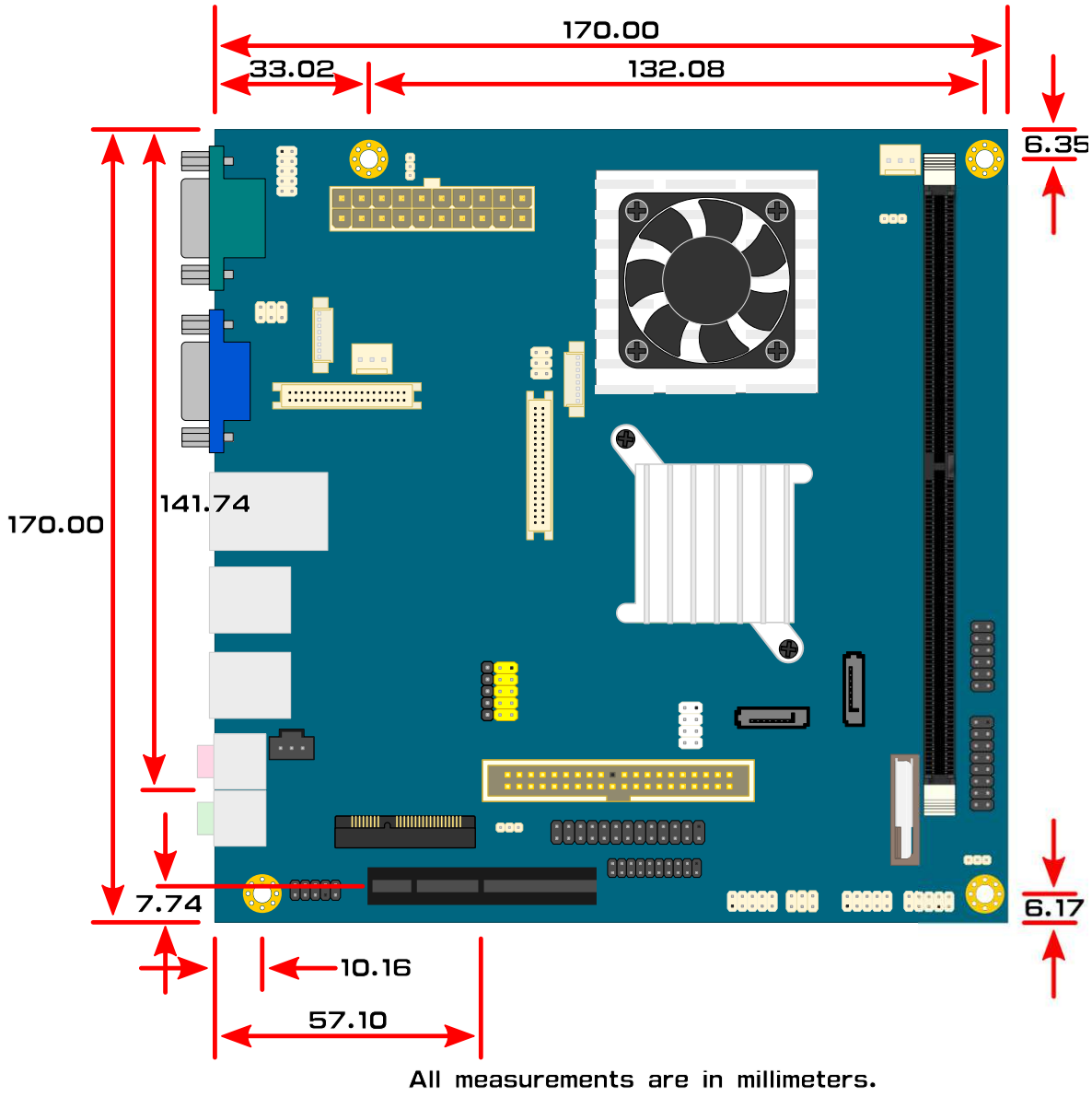


Figure 3: EPIA-M830 mounting layout and dimensions

VIA EPIA-M830 Height Distribution

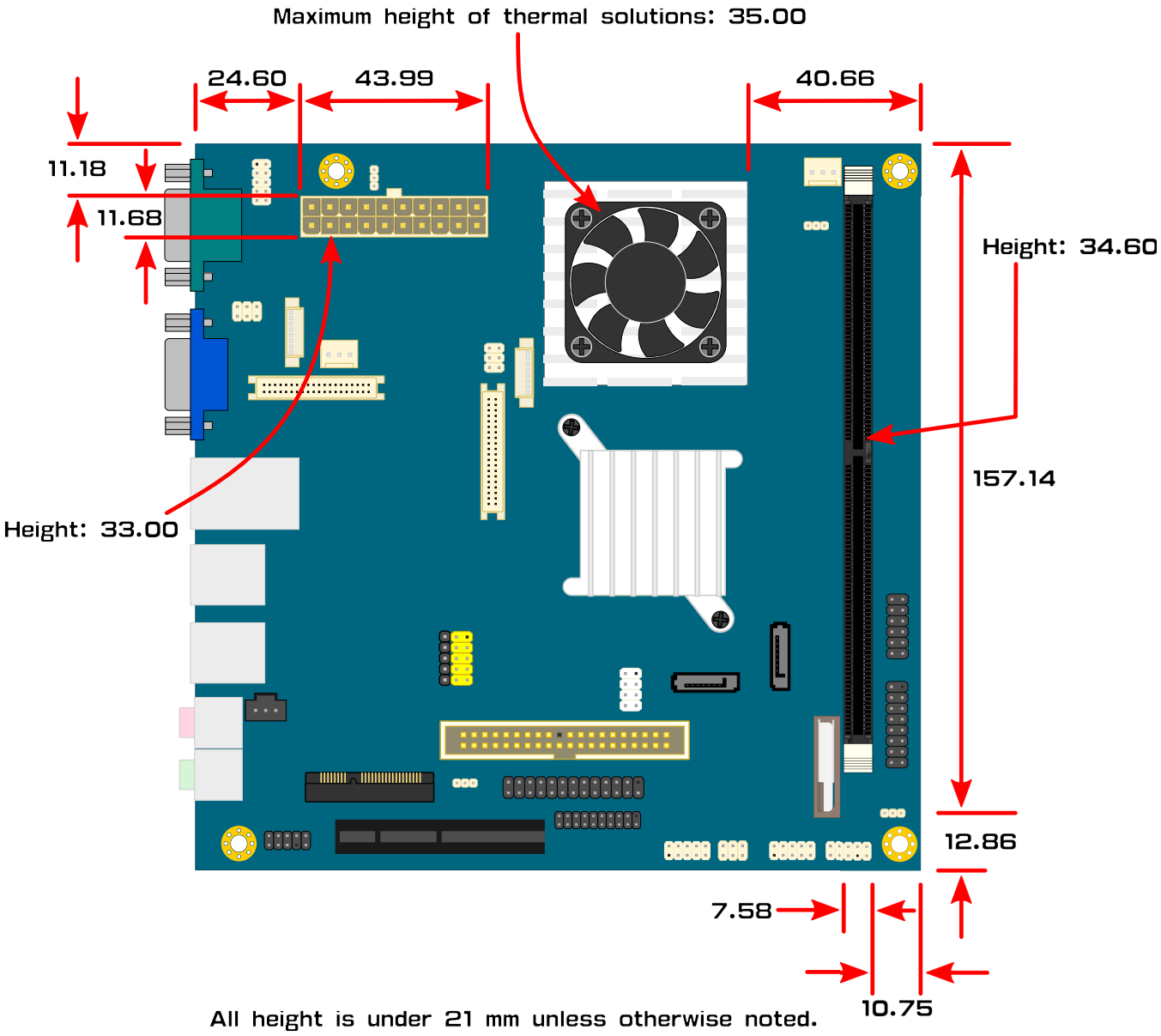


Figure 4: EPIA-M830 height distribution

VIA EPIA-M830 Side Profile

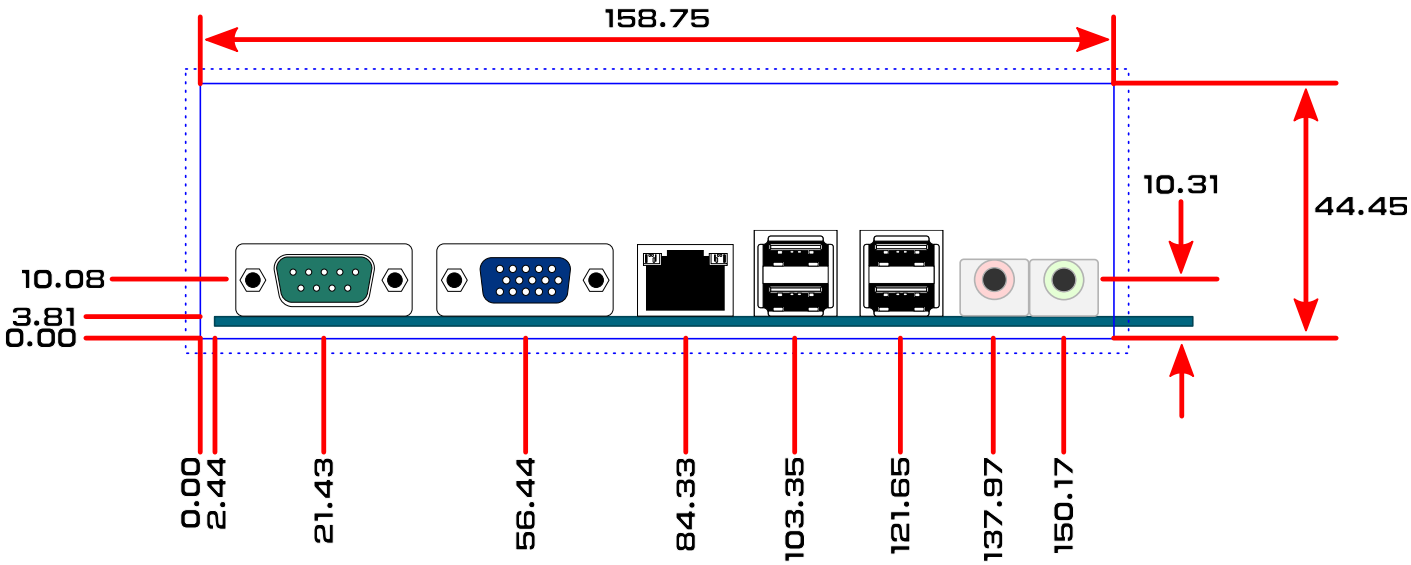


Figure 5: EPIA-M830 back panel ports

Power Consumption

Power consumption tests were performed on the VIA EPIA-M830 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-M830 13000

A. Playing DVD – Power DVD 8.0

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.234	0.964	3.118
Main Board +5V	4.942	3.403	16.818
Main Board 5VSB	5.143	0.093	0.478
Main Board +12V	12.106	0.125	1.513
		Total Power Consumption	21.927

B. Playing MP3 – Media Player

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.266	1.000	3.266
Main Board +5V	4.999	2.588	12.937
Main Board 5VSB	5.187	0.087	0.451
Main Board +12V	12.133	0.131	1.589
		Total Power Consumption	18.243

C. Running Network Application – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.241	1.013	3.283
Main Board +5V	4.956	3.429	16.994
Main Board 5VSB	5.143	0.090	0.463
Main Board +12V	12.124	0.122	1.479
		Total Power Consumption	22.219

D. Idle

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.276	0.991	3.247
Main Board +5V	5.030	1.921	9.663
Main Board 5VSB	5.203	0.081	0.421
Main Board +12V	12.135	0.133	1.614
		Total Power Consumption	14.945

E. Running C.C. Winstone 2004

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.246	0.982	3.188
Main Board +5V	4.939	3.890	19.213
Main Board 5VSB	5.151	0.096	0.494
Main Board +12V	12.137	0.123	1.493
		Total Power Consumption	24.388

F. S3 mode

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.072	0.000	0.000
Main Board 5VSB	5.224	0.205	1.071
Main Board +12V	0.000	0.000	0.000
		Total Power Consumption	1.071

VIA EPIA-M830 10000

A. Playing DVD – Power DVD 8.0

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.241	0.946	3.066
Main Board +5V	4.878	3.089	15.068
Main Board 5VSB	5.088	0.127	0.646
Main Board +12V	12.089	0.126	1.523
		Total Power Consumption	20.303

B. Playing MP3 – Media Player

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.289	0.978	3.217
Main Board +5V	4.982	1.982	9.874
Main Board 5VSB	5.181	0.086	0.446
Main Board +12V	12.084	0.131	1.583
		Total Power Consumption	15.120

C. Running Network Application – Files Copy

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.287	1.019	3.349
Main Board +5V	4.963	2.652	13.162
Main Board 5VSB	5.173	0.094	0.486
Main Board +12V	12.137	0.129	1.566
		Total Power Consumption	18.563

D. Idle

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.276	0.962	3.152
Main Board +5V	5.011	1.798	9.010
Main Board 5VSB	5.182	0.083	0.430
Main Board +12V	12.089	0.138	1.668
		Total Power Consumption	14.260

E. Running C.C. Winstone 2004

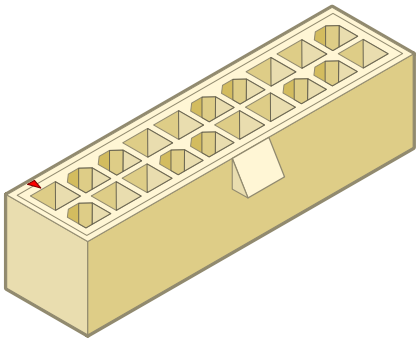
	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	3.285	0.975	3.203
Main Board +5V	4.947	2.939	14.539
Main Board 5VSB	5.168	0.094	0.486
Main Board +12V	12.139	0.126	1.530
		Total Power Consumption	19.758

F. S3 mode

	Measured Voltage	Measure Amp	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.072	0.000	0.000
Main Board 5VSB	5.215	0.206	1.074
Main Board +12V	0.001	0.000	0.000
		Total Power Consumption	1.074

Power Specifications

The VIA EPIA-M830 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-M830 Microsoft and Linux Driver Support

MICROSOFT DRIVER SUPPORT

The VIA EPIA-M830 mainboard is compatible with Microsoft operating systems. The latest Windows 2000 and Windows XP drivers can be downloaded from the VIA Embedded 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-M830 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 VIA Embedded support contact.

Contact

For more information on the VIA EPIA-M830 Mini-ITX mainboard contact your sales representative or visit our website at www.viaembedded.com

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