Operating Guide

EPIA EX-Series Mini-ITX Mainboard

January 18, 2012 Version 1.01

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VIA EPIA EX-Series Overview

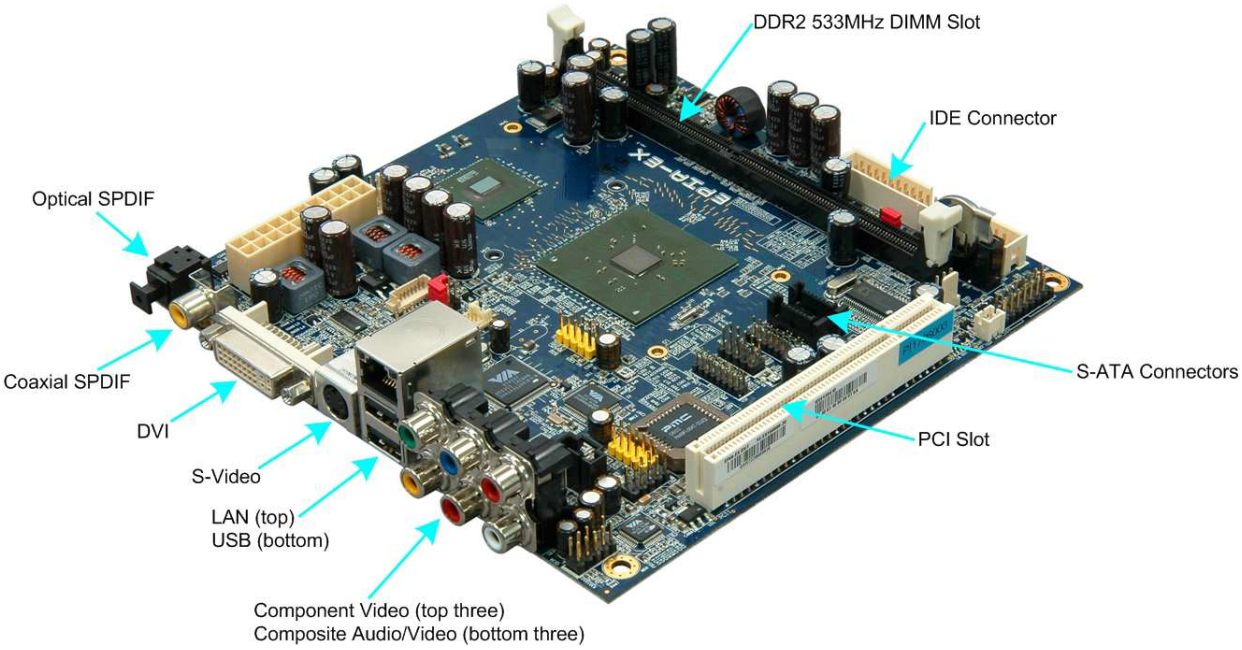
The VIA EPIA EX-Series Mini-ITX Mainboard is an ultra compact native x86 platform optimized for today's demanding embedded and productivity applications. The mainboard is based on the VIA CX700M advanced all-in-one system processor featuring an embedded hardware MPEG-2 and WMV9 video decoding accelerator. Its integrated VIA C-Pro II 2D/3D graphics provide rich digital media performance. With the sizable memory bandwidth of DDR2 533MHz SDRAM DIMM and the high data transfer speeds of ATA-133 and further enhanced by support of 8-Channel High Definition Audio Codec for Smart 7.1 surround sound and SPDIF, the VIA EPIA EX-Series delivers the increased performance levels required by today's embedded digital media applications.

The latest in high-bandwidth connectivity features two USB 2.0 ports (and the ability to support up to 2 more USB ports using the available onboard pin headers), a 1394 onboard pin header and a 10/100 Fast Ethernet port for extended broadband connectivity. The VIA EPIA EX-Series also has one PCI slot for expandability options. The VIA EPIA EX-Series is compatible with a full range of Mini-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies.

The VIA EPIA EX-Series is fully compatible with Microsoft® and Linux operating systems and is available in a variety of configurations.

VIA EPIA EX-Series Layout

VIA EPIA EX Mini-ITX Mainboard
(Dimension 17cm x 17cm)



VIA EPIA EX-Series Specifications

Model Name	- EPIA EX15000	- EPIA EX10000E
Processor	- VIA C7 1.5GHz NanoBGA2 processor	- VIA C7 1.0GHz NanoBGA2 processor
Chipset	- VIA CX700M advanced all-in-one system processor	
System Memory	- 1 DDR2 533 DIMM socket - Up to 1GB memory size	
VGA	- Integrated VIA C-Pro II 3D/2D AGP graphics with MPEG-2 and WMV9 video decoding acceleration	
Expansion Slots	- 1 PCI	
Onboard IDE	- 1 UltraDMA 133/100/66/33 connector	
Onboard LAN	- 1 VIA VT6107 10/100 Mbps Fast Ethernet Controller Or 1 VIA VT6122 Gigabit Ethernet Controller (Optional)	
Onboard Audio	- VIA VT1708A High Definition Audio Codec	
Onboard TV Out	- VIA VT1625 HDTV Encoder	
Onboard 1394	- VIA VT6307S IEEE 1394 Firewire	
Onboard I/O Connectors	- 1 USB pin connector for 4 additional USB 2.0 ports - 1 1394 pin connector for 1 1394 port - 1 Front-panel audio header for HP-out and MIC-in - 1 Audio Line-in header - 1 LPC header - 1 LVDS connector to support 1-CH LVDS panel - 1 TV out header for SCART and D-terminal - 1 Video pin connector for VGA output, CCIR656/601 video input and SMBUS - 1 PS2 mouse/keyboard header - 2 SATA connectors - 2 Fan pin connectors for CPU and System fans - 1 ATX power connector	
Back Panel I/O	- 1 DVI connector - 1 RJ45 with USB stack 2.0 connector - 1 miniDIN for S-Video output - 1 Triple RCA jack for composite video and stereo audio outputs - 1 Triple RCA jack for component video output - 1 S/PDIF coaxial connector - 1 S/PDIF optical connector	
BIOS	- Award BIOS - LPC 4/8Mbit flash memory	
Operating System	Windows 2000/XP, Linux, Win CE, XPe	
System Monitoring & Management	- Wake-on-LAN, Keyboard-Power-on, Timer-Power-on - System power management, AC power failure recovery	
Operating Temperature	0 ~ 50 °C	
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)	
Form Factor	- Mini-ITX (6-layer) - 17 cm x 17 cm	

* The specification is subject to change without prior notice.

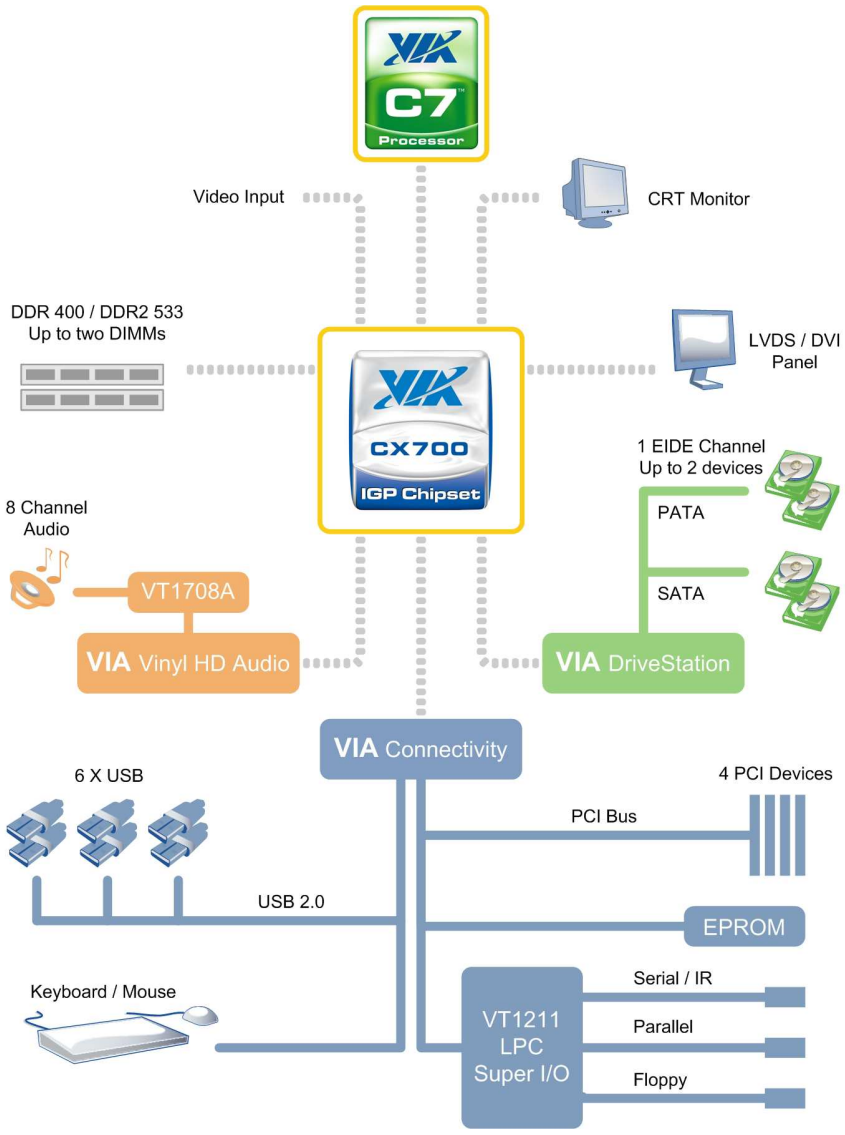
VIA EPIA EX Processor SKUs

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

- 1.0 GHz VIA C7 NanoBGA2 Processor
- 1.5 GHz VIA C7 NanoBGA2 Processor

VIA CX700M All-in-One System Processor Overview

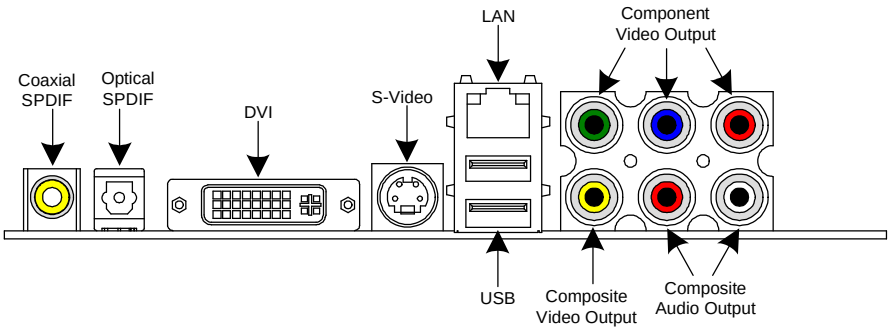
The VIA CX700M All-in-One System Processor is designed to enable high quality digital video streaming and DVD playback in a new generation of fanless, small form factor PCs and IA devices. The CX700M features the embedded VIA C-Pro II 2D/3D MPEG-2 and WMV9 video decoding acceleration, DDR2 533MHz support, motion compensation and dual-display support to ensure a rich overall entertainment experience. Outstanding connectivity features include USB 2.0, 10/100 LAN and ATA/133.

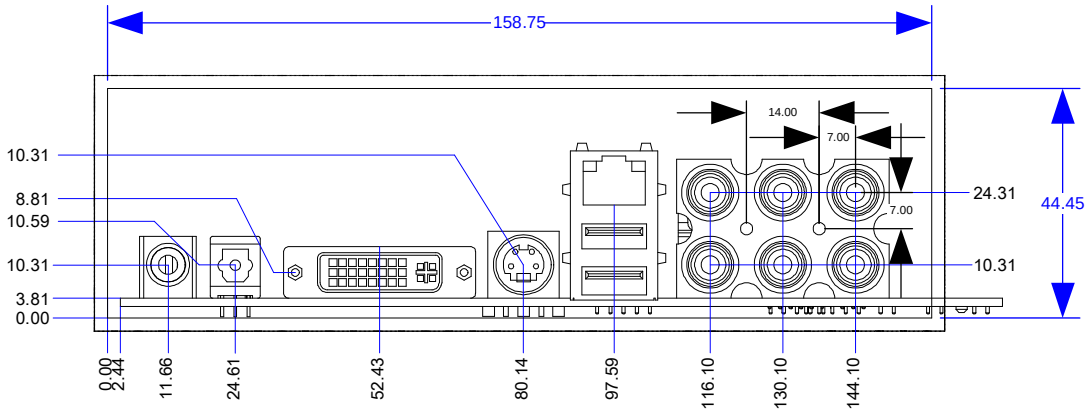


VIA EPIA EX-Series I/O Back Panel Layout

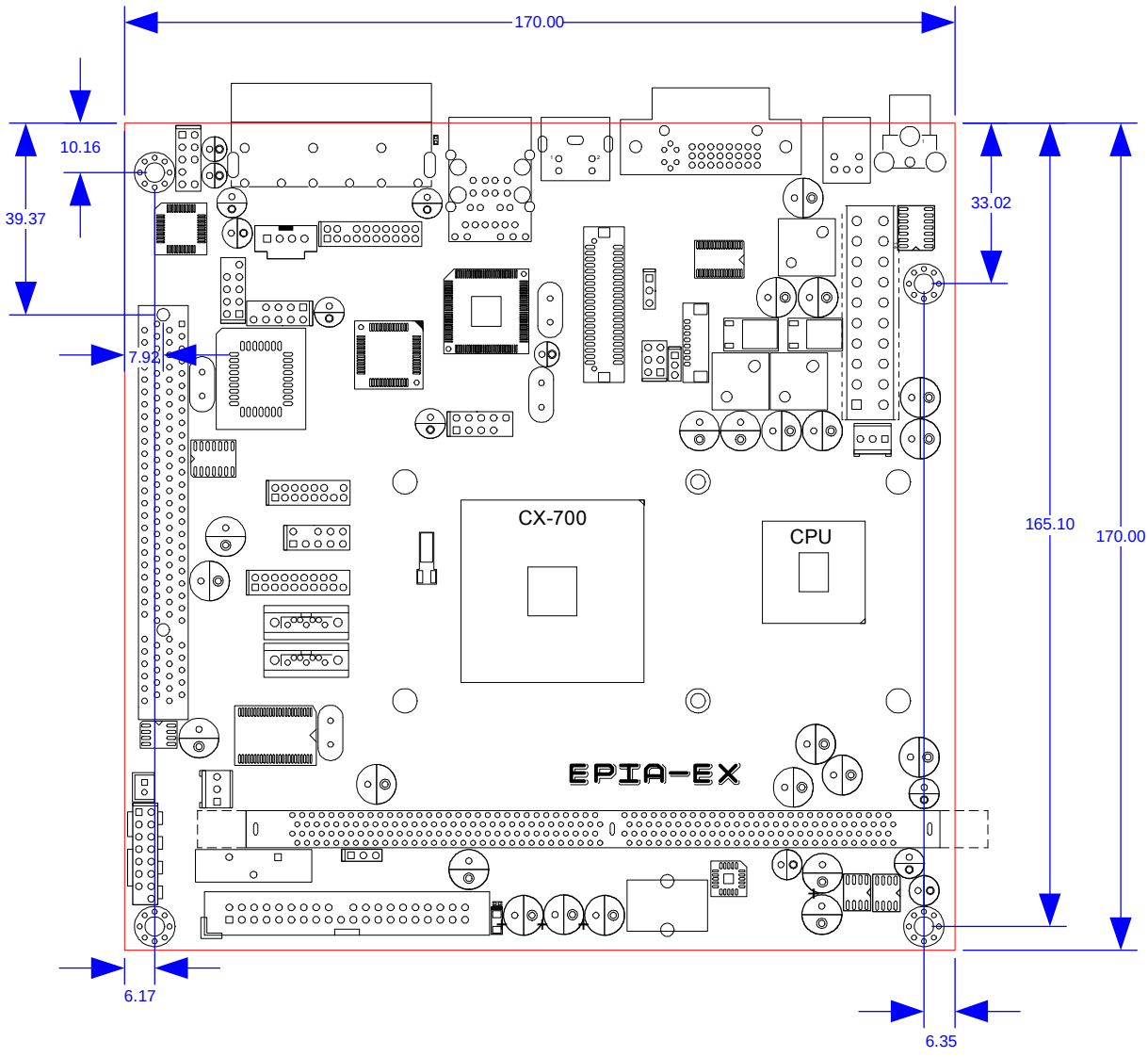
The EPIA EX's ultra compact 17cm x 17cm, integrated design supports connectivity options including one DVI port, one RJ45 port, two USB 2.0 ports, one S-Video port, one optical SPDIF port, one coaxial SPDIF port, one set of composite audio/video outputs and one set of component video outputs.

In addition to the ports available on the back panel, the EPIA EX also supports a host of connectivity options through PS2 mouse/keyboard pin header, 1394 pin header, LPC pin header, USB 2.0 pin headers, video pin header (for VGA, CCIR656/601 and SMBus), TV-out pin header, LVDS connector, S-ATA connectors, and front audio jacks.

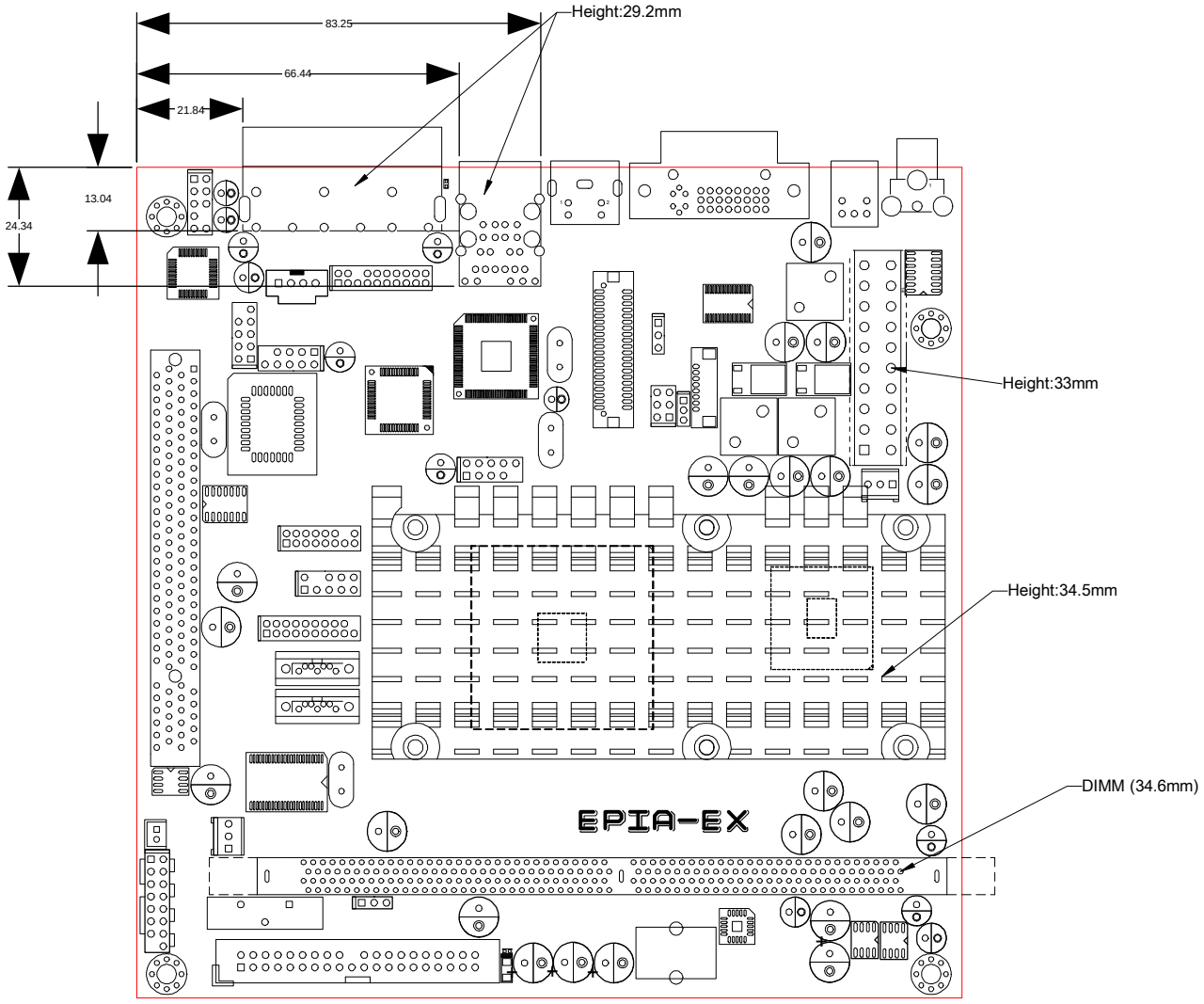




VIA EPIA EX-Series Board Dimensions



VIA EPIA EX-Series Height Distribution



Else height: under 21mm

Power Consumption

Power consumption tests were carried out comparing the VIA EPIA EX running with VIA C7 1.0 GHz NanoBGA2 and VIA C7 1.5 GHz NanoBGA2 processors. The following tables are a comprehensive breakdown of the EPIA platform's voltage, amp and wattage values while running common system applications.

VIA EPIA EX 1.0 GHz

A. Playing DVD – Power DVD 5.0

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.255	1.585	5.159
Main Board +5V	5.061	1.350	6.832
Main Board 5VSB	4.960	0.101	0.501
Main Board +12V	12.033	0.180	2.166
Main Board Power Consumption			14.658

B. Playing MP3 – Media Player

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.261	1.563	5.097
Main Board +5V	5.065	1.333	6.752
Main Board 5VSB	4.963	0.101	0.501
Main Board +12V	12.031	0.181	2.178
Main Board Power Consumption			14.527

C. Running Network Application – Files Copy

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.260	1.555	5.069
Main Board +5V	5.077	0.974	4.945
Main Board 5VSB	4.964	0.101	0.501
Main Board +12V	12.020	0.180	2.164
Main Board Power Consumption			12.679

D. Idle

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.267	1.556	5.083
Main Board +5V	5.080	0.907	4.608
Main Board 5VSB	4.968	0.102	0.507
Main Board +12V	12.018	0.184	2.211
Main Board Power Consumption			12.409

E. Run C.C. Winstone 2004

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.260	1.555	5.069
Main Board +5V	5.077	0.974	4.945
Main Board 5VSB	4.964	0.101	0.501
Main Board +12V	12.020	0.180	2.164
Main Board Power Consumption			12.679

F. S3 Mode

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	4.980	0.124	0.618
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.618

VIA EPIA EX 1.5 GHz

A. Playing DVD – Power DVD 5.0

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.280	1.589	5.212
Main Board +5V	5.064	1.419	7.186
Main Board 5VSB	4.955	0.100	0.496
Main Board +12V	12.030	0.204	2.454
Main Board Power Consumption			15.347

B. Playing MP3 – Media Player

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.283	0.556	1.825
Main Board +5V	5.068	1.425	7.222
Main Board 5VSB	4.958	0.100	0.496
Main Board +12V	12.029	0.204	2.454
Main Board Power Consumption			11.997

C. Running Network Application – Files Copy

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.284	1.560	5.123
Main Board +5V	5.076	1.076	5.462
Main Board 5VSB	4.957	0.100	0.496
Main Board +12V	12.013	0.204	2.451
Main Board Power Consumption			13.531

D. Idle

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.287	1.553	5.105
Main Board +5V	5.081	0.928	4.715
Main Board 5VSB	4.962	0.100	0.496
Main Board +12V	12.017	0.205	2.463
Main Board Power Consumption			12.780

E. Run C.C. Winstone 2004

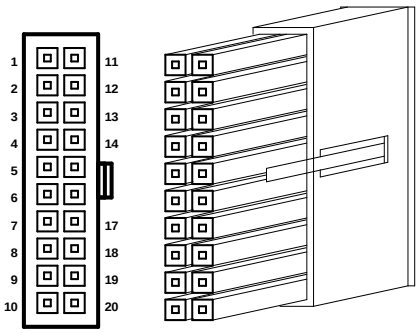
	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.285	1.555	5.108
Main Board +5V	5.078	1.006	5.108
Main Board 5VSB	4.960	0.100	0.496
Main Board +12V	12.021	0.204	2.452
Main Board Power Consumption			13.165

F. S3 Mode

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.000	0.000	0.000
Main Board +5V	0.000	0.000	0.000
Main Board 5VSB	4.980	0.125	0.623
Main Board +12V	0.000	0.000	0.000
Main Board Power Consumption			0.623

Power Specifications

The EPIA EX utilizes an industry standard 20-pin ATX main connector to the power supply. Due to the EPIA EX platform's ultra low power requirements a 90 – 120 Watt ATX power supply is ample for even the heaviest of multimedia system applications.



1	+3V	**11**	+3V
2	+3V	**12**	-12V
3	Gnd	**13**	Gnd
4	+5V	**14**	PWR_ON-
5	Gnd	**15**	Gnd
6	+5V	**16**	Gnd
7	Gnd	**17**	Gnd
8	PWR_GD	**18**	NC
9	5V_SB	**19**	+5V
10	+12V	**20**	+5V

Note: NC = no connection

VIA EPIA EX-Series Microsoft and Linux Driver Support

Microsoft Driver Support

VIA EPIA EX series offers full support for the complete range of Microsoft operating systems.

For standard operating systems, Windows 2000/XP latest drivers downloads can be found in the VEPD website at www.viaembedded.com.

For embedded operating systems, Windows CE.NET and XP Embedded related driver supports can be found in the VIA Arena website at www.viaarena.com.

Linux Driver Support

VIA EPIA EX mainboards have a very high degree of support under Linux.

Support and drivers are provided through various methods including:

- Drivers provided by VIA
  - Using a driver built into a distribution package
  - Visiting VIA Arena website at www.viaarena.com for latest updates on a monthly basis
- 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 either through the Developers portal on VIA Arena, or through your VEPD support contact. Alternatively, VIA can work further towards providing additional drivers to suite your specific needs.

Contact information

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

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