



Operating Guide

EPIA-N800 Mainboard

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VIA EPIA-N800 Overview

The VIA EPIA-N800 Nano-ITX mainboard is a super 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-N800 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-N800 supports up to 2 GB of 667/533 MHz DDR2 memory. The VIA EPIA-N800 provides support for high fidelity audio with its included VIA VT1708B 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-N800 is compatible with a full range of Nano-ITX, Mini-ITX, FlexATX, and MicroATX enclosures. The VIA EPIA-N800 is fully compatible with Microsoft® and Linux operating systems.

VIA EPIA-N800 Layout

EPIA-N800 Mainboard
(Dimension 12 cm x 12 cm)

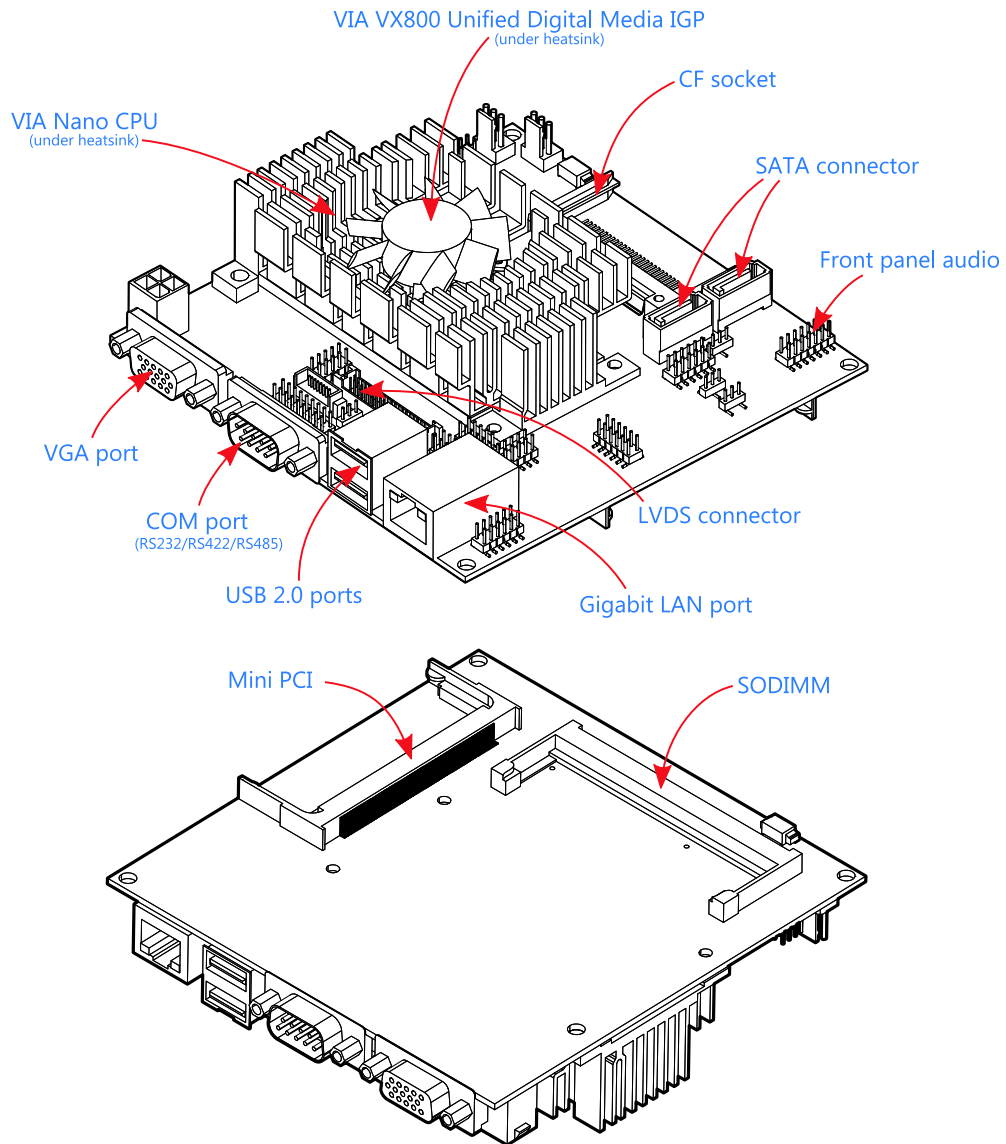


Figure 1: EPIA-N800 layout

VIA EPIA-N800 Specifications

Model Name	- EPIA-N800-13
Processor	- VIA Nano™ 1.3+ GHz NanoBGA2 processor (400 MHz FSB)
Chipset	- VIA VX800 Unified Digital Media IGP Chipset
System Memory	- 1 x DDR2 533/667 SODIMM 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 (2.0 mm / 44-pin)
Onboard LAN	- 1 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 audio pin header for headphone-out/MIC-in or amplifier module - 1 x Dual-channel LVDS panel connector - 1 x Backlight control connector (for inverter power and brightness control) - 1 x CF connector - 2 x SATA connectors - 7 th pin of SATA1 provides power for SATA DOM - 2 x 4-pin +5V SATA power connectors - 1 x SPI pin header - 1 x Digital I/O pin header - 1 x KB/MS pin header - 1 x SMBus pin header - 3 x RS-232 serial port pin header (with 5V/12V selector) - 1 x Front panel pin header - 1 x System temperature reading pin header - 2 x Fan connectors for CPU and system fans - 1 x +12V power connector - 1 x Power mode select connector (PS-on, 5Vsb)
Expansion Slot	- 1 x Mini PCI slot
Back Panel I/O	- 1 x Serial port (supports RS-232/422/485) - 1 x VGA port - 1 x RJ-45 LAN port - 2 x USB 2.0 ports
BIOS	- Award BIOS - SPI 4/8 Mbit flash memory
Operating System	Windows 2000/XP, Linux, WinCE, XPe
System Monitoring & Management	- CPU voltage monitoring - Wake-on-LAN, Keyboard power-on, RTC Timer power-on, Watch Dog Timer - Fan speed detection - System power management and temperature monitoring - AC Power failure recovery
Operating Temperature	0°C ~ 60°C
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)
Form Factor	- Nano-ITX - 12 cm x 12 cm

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

VIA EPIA-N800 Processor SKUs

The VIA EPIA-N800 is available in the following speed grade:

- 1.3+ GHz VIA Nano™ NanoBGA2 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, 10/100/1000 LAN, SATA (3.0 Gbps), and ATA/133.

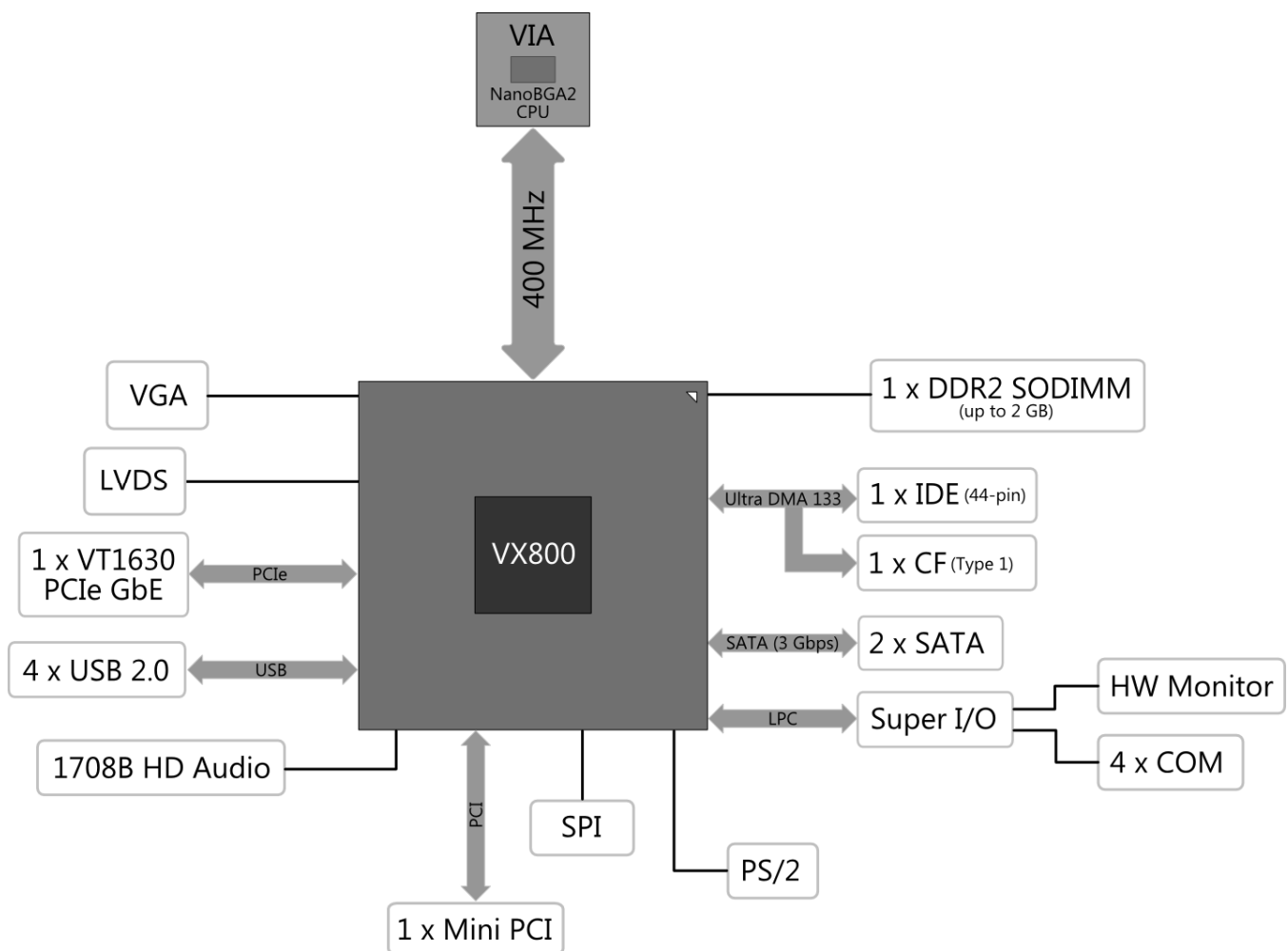


Figure 2: VX800 as implemented in EPIA-N800

VIA EPIA-N800 Dimensions

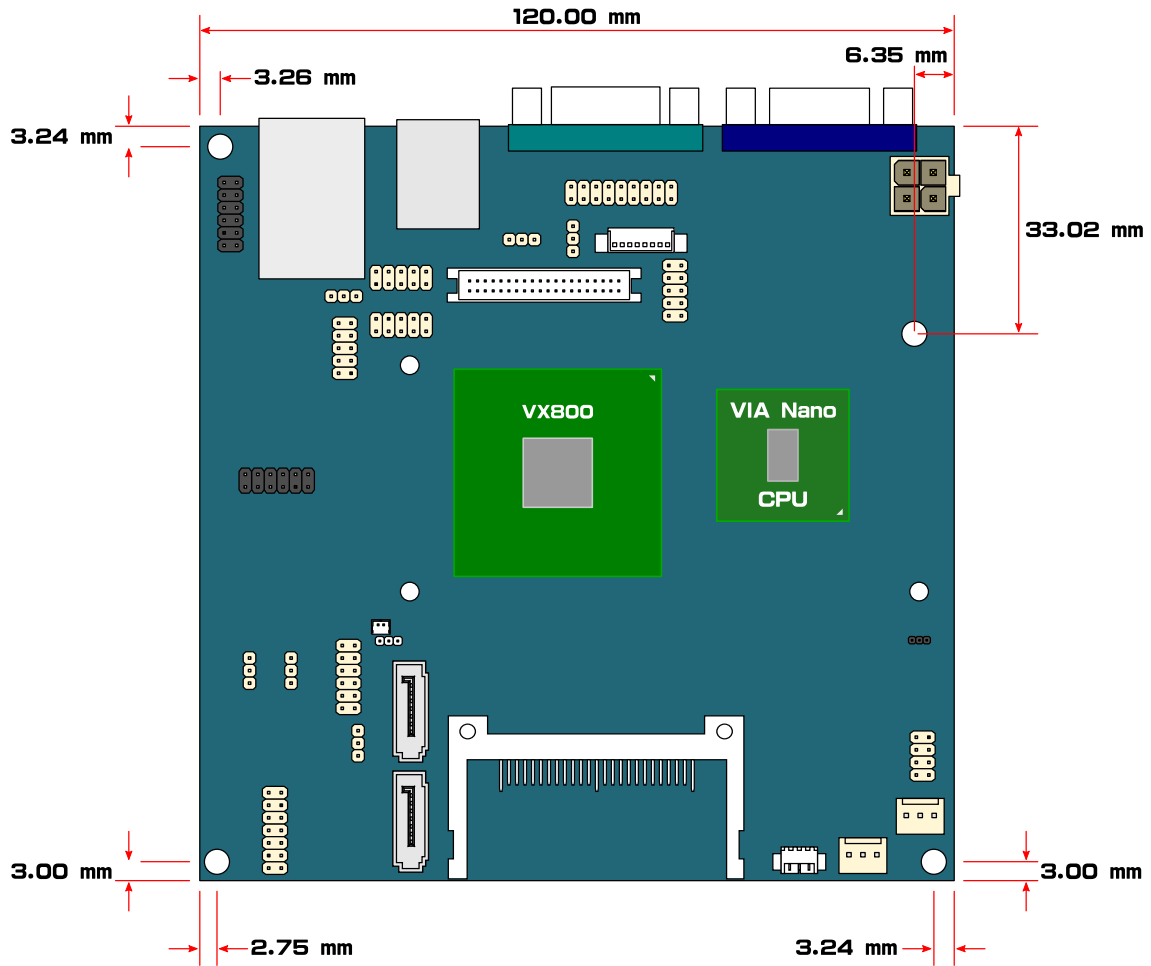
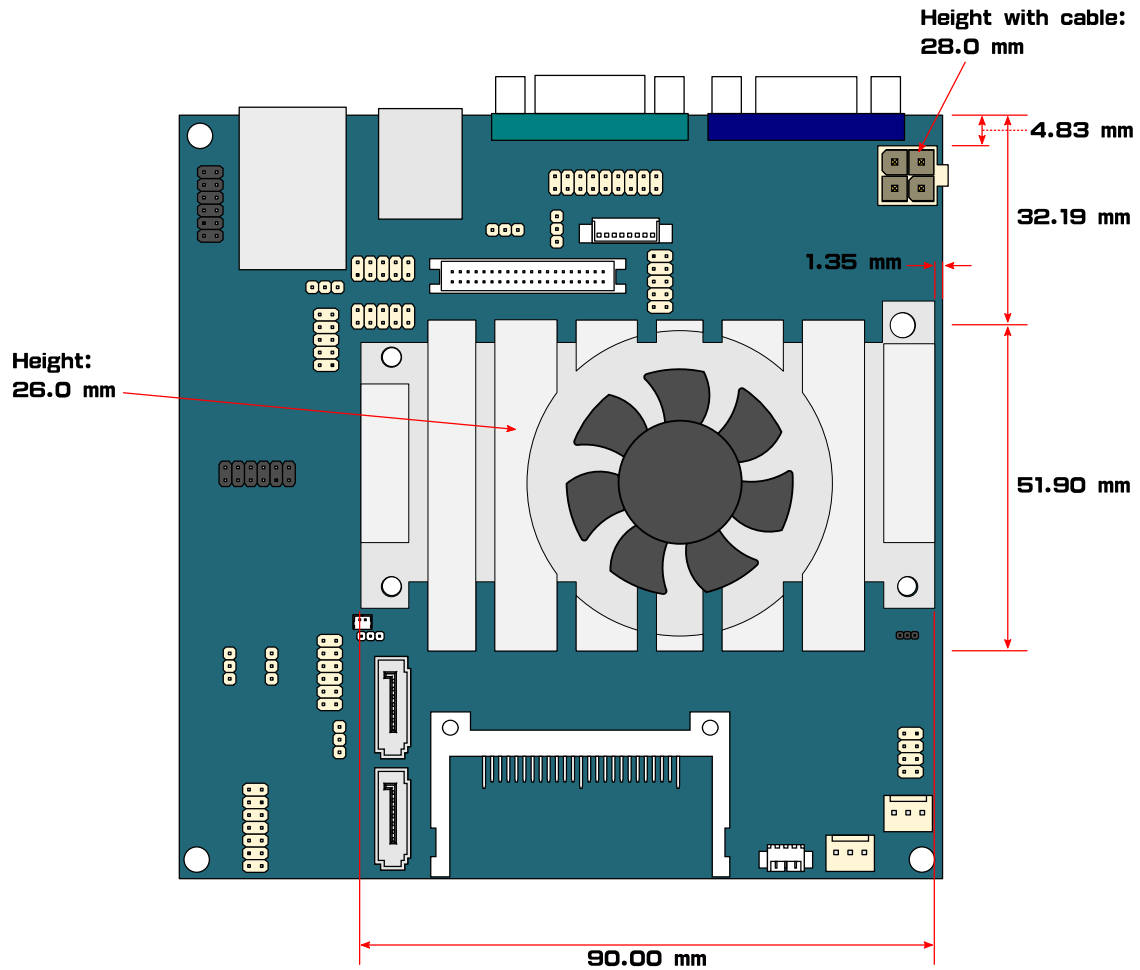


Figure 3: EPIA-N800 mounting layout and dimensions

VIA EPIA-N800 Height Distribution



All other height is 21 mm or below.

Figure 4: EPIA-N800 height distribution (top)

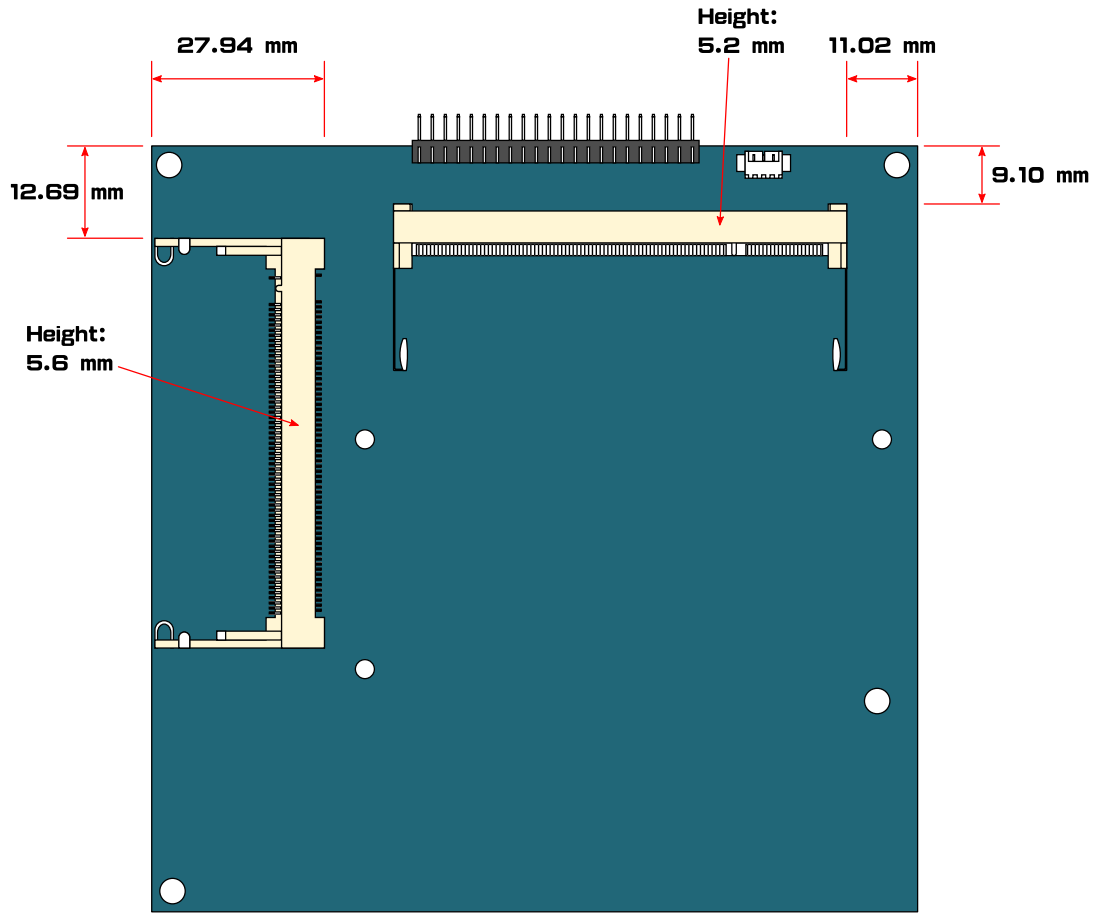


Figure 5: EPIA-N800 height distribution (bottom)

VIA EPIA-N800 Side Profile

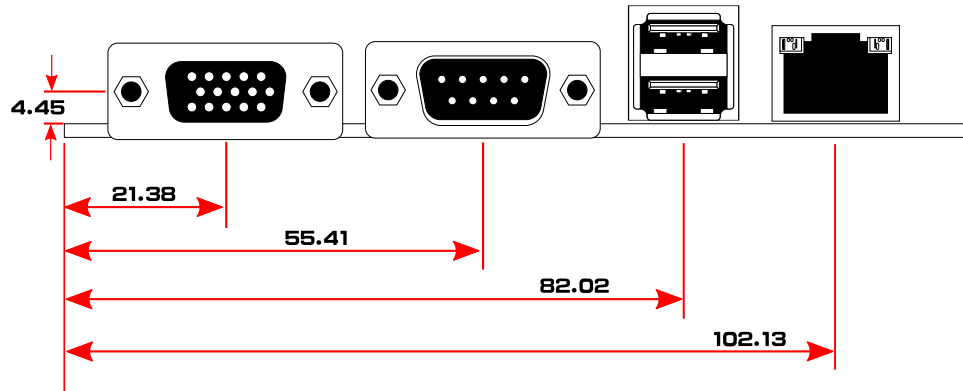


Figure 6: EPIA-N800 back panel ports

Power Consumption

Power consumption tests were performed on the VIA EPIA-N800 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-N800-13

A. Playing a DVD

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.791	1.504	17.734
DC Input +12V	11.791	1.504	17.734
		Main Board Power Consumption	17.734
		Total Power Consumption	17.734

B. Playing MP3 – Media Player

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.670	1.443	16.840
DC Input +12V	11.670	1.443	16.840
		Main Board Power Consumption	16.840
		Total Power Consumption	16.840

C. Downloading files through the Network

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.628	1.362	15.837
DC Input +12V	11.628	1.362	15.837
		Main Board Power Consumption	15.837
		Total Power Consumption	15.837

D. Running 3DMark05

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.575	1.925	22.282
DC Input +12V	11.575	1.925	22.282
		Main Board Power Consumption	22.282
		Total Power Consumption	22.282

E. Running C.C. Winstone 2004

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.604	1.990	23.092
DC Input +12V	11.604	1.990	23.092
		Main Board Power Consumption	23.092
		Total Power Consumption	23.092

F. Idle

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.628	1.337	15.547
DC Input +12V	11.628	1.337	15.547
		Main Board Power Consumption	15.547
		Total Power Consumption	15.547

G. S3 mode

	Measured Voltage	Measure Amp	Watts
Main Board +12V	11.799	0.196	2.313
DC Input +12V	11.799	0.196	2.313
		Main Board Power Consumption	2.313
		Total Power Consumption	2.313

VIA EPIA-N800 Microsoft and Linux Driver Support

MICROSOFT DRIVER SUPPORT

The VIA EPIA-N800 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 XP Embedded), the related drivers can be found in the VIA Embedded website at www.viaembedded.com.

LINUX DRIVER SUPPORT

The VIA EPIA-N800 mainboard is highly compatible with many Linux distributions.

Support and drivers are provided through various methods including:

- Using 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-N800 Nano-ITX mainboard contact your sales representative or visit our website at www.viaembedded.com.

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