



Operating Guide

EPIA NR-Series Nano-ITX Mainboard

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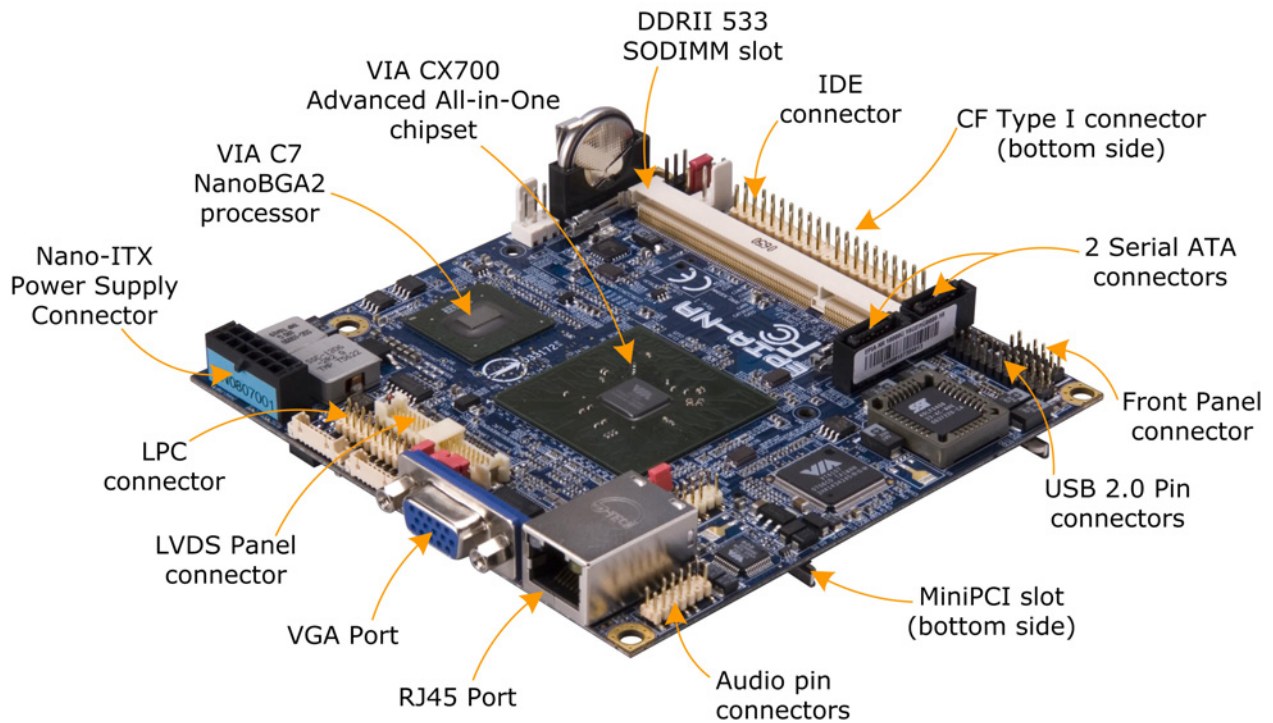
VIA EPIA NR-Series Overview

The VIA EPIA NR-Series Nano-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 CX700 chipset featuring an embedded hardware MPEG-2 accelerator and integrated VIA UniChrome™ Pro II 3D/2D graphics for rich digital media performance. With the sizable memory bandwidth of DDR2 533MHz SDRAM DIMM and the high data transfer speed of ATA-133 and further enhanced by support of VIA VT1708A High Definition Audio codec, the VIA EPIA NR-Series delivers the increased performance levels required by today's embedded digital media applications.

The latest in high-bandwidth connectivity is supported with six USB 2.0 ports, as well as two COM ports and has one 10/100 Fast Ethernet ports for extended broadband connectivity. The VIA EPIA NR-Series also has one Mini-PCI slot for expandability options, and one LVDS connector for two single channel or one dual channel LVDS panel support.

VIA EPIA NR-Series Layout

VIA EPIA NR Nano-ITX Mainboard (Dimension 12cm x 12cm)



VIA EPIA NR-Series Specifications

Model Name	- EPIA NR10000EG
Processor	- VIA C7® 1.0GHz NanoBGA2 processor
Chipset	- VIA CX700 Advanced All-in-One chipset
System Memory	- 1 DDR2 533 SODIMM slot - Up to 1GB memory size
VGA	- Integrated VIA UniChrome™ Pro II 3D/2D AGP graphics with MPEG-2 video decoding acceleration
Expansion Slots	- 1 Mini-PCI slot
Onboard IDE	- 1 UltraDMA 133/100 connector (2.54mm, 40-pin)
Onboard Serial ATA	- 2 SATA connectors
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 Super I/O	- VIA VT1211 LPC I/O
Onboard I/O Connectors	- 1 USB pin connector for 6 additional USB 2.0 ports - 1 LPC pin connector - 1 SMBus pin connector - 2 Serial port pin connectors (COM 1 5V/12V selectable) - 2 LVDS Power pin connectors - 1 LVDS Panel pin connector to support 2 single-channel LVDS panels or 1 dual-channel panel (optional) - 1 CF (Compact Flash) Type I connector (shared with IDE, default slave) - 1 PS2 Mouse/Keyboard pin connector - 1 Audio pin connector for Line-out, Line-in, MIC-in, and S/PDIF out - 1 Front Panel pin connector - 2 Fan connectors for CPU and system fans - 1 Nano-ITX power connector
Back Panel I/O	- 1 VGA connector - 1 RJ45 LAN port
BIOS	Award BIOS, LPC 4/8Mbit flash memory
System Monitoring & Management	- System power management, AC power failure recovery - CPU voltage monitoring - Wake-on-LAN/ Keyboard/Mouse, Timer-Power-on, Watch Dog Timer
Operating Temperature	0°C ~ 50°C
Operating Humidity	0% ~ 95% (relative humidity; non-condensing)
Form Factor	- Nano-ITX (8-layer) - 12cm x 12cm

* The specification is subject to change without prior notice.

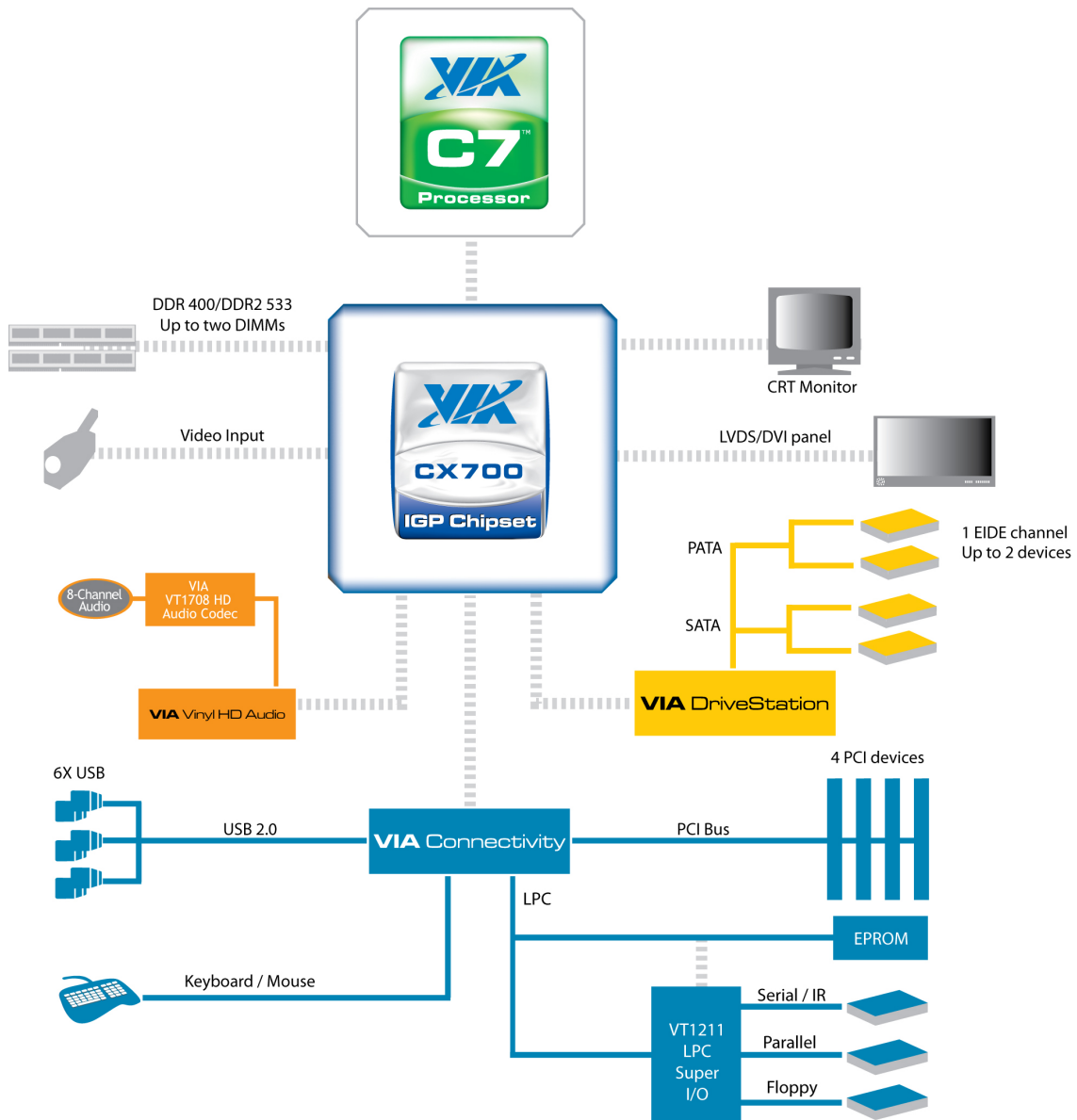
VIA EPIA NR Processor SKUs

The VIA EPIA NR-Series is available in one speed grade as follows:

- 1.0 GHz VIA C7[®] NanoBGA2 Processor

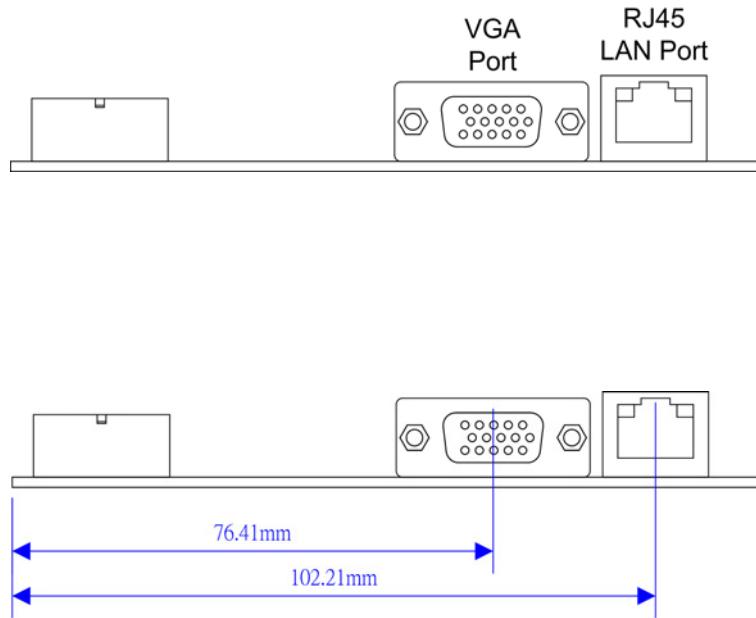
VIA CX700 Chipset Overview

The VIA CX700 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 [CX700](#) features the embedded VIA UniChrome™ Pro 2D / 3D MPEG-2 acceleration, DDR2 533 / 400MHz support, motion compensation and duo-view support to ensure a rich overall entertainment experience. Outstanding connectivity features include USB 2.0, 10/100 LAN and ATA/133.

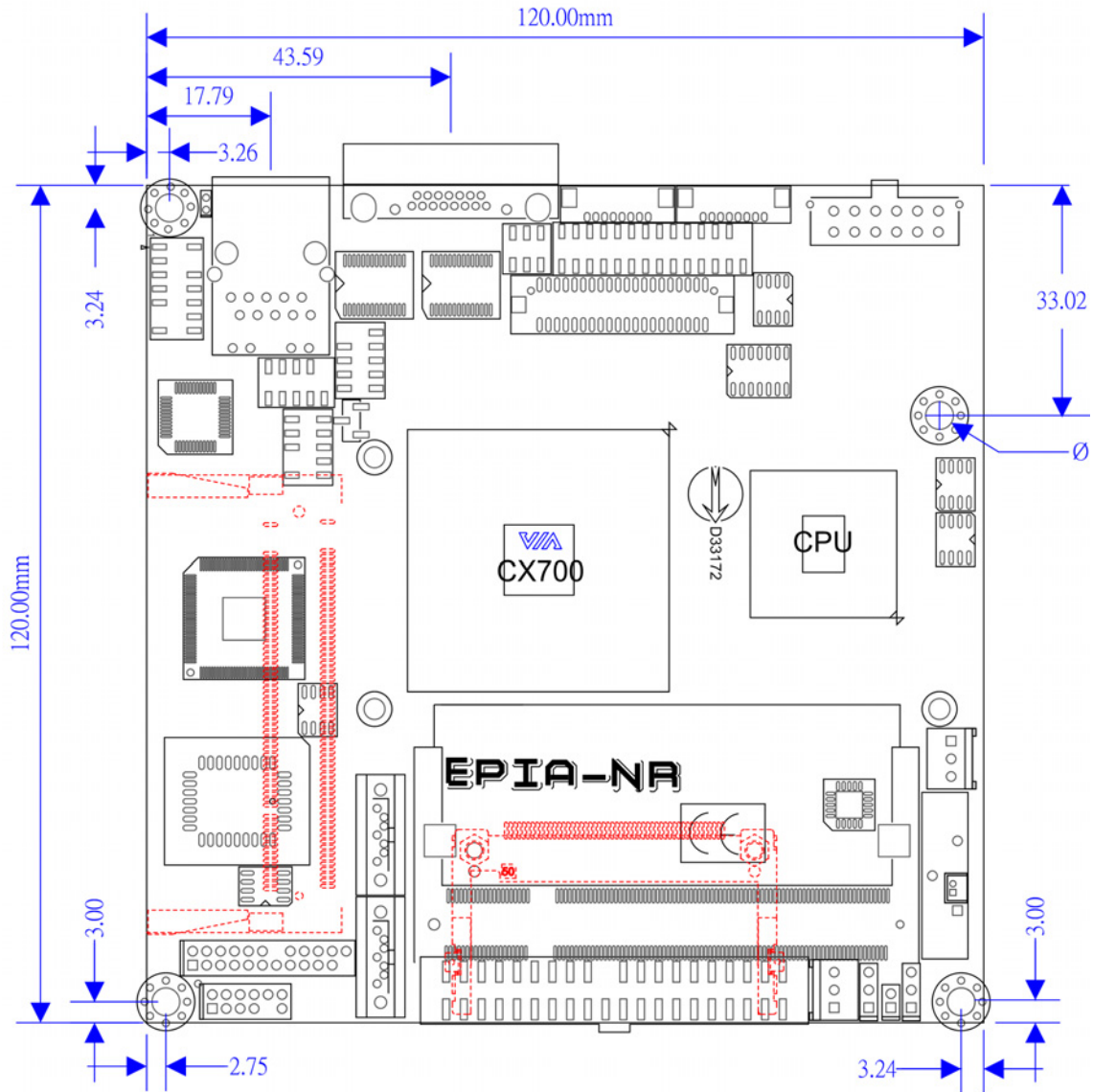


VIA EPIA NR-Series I/O Back Panel Layout

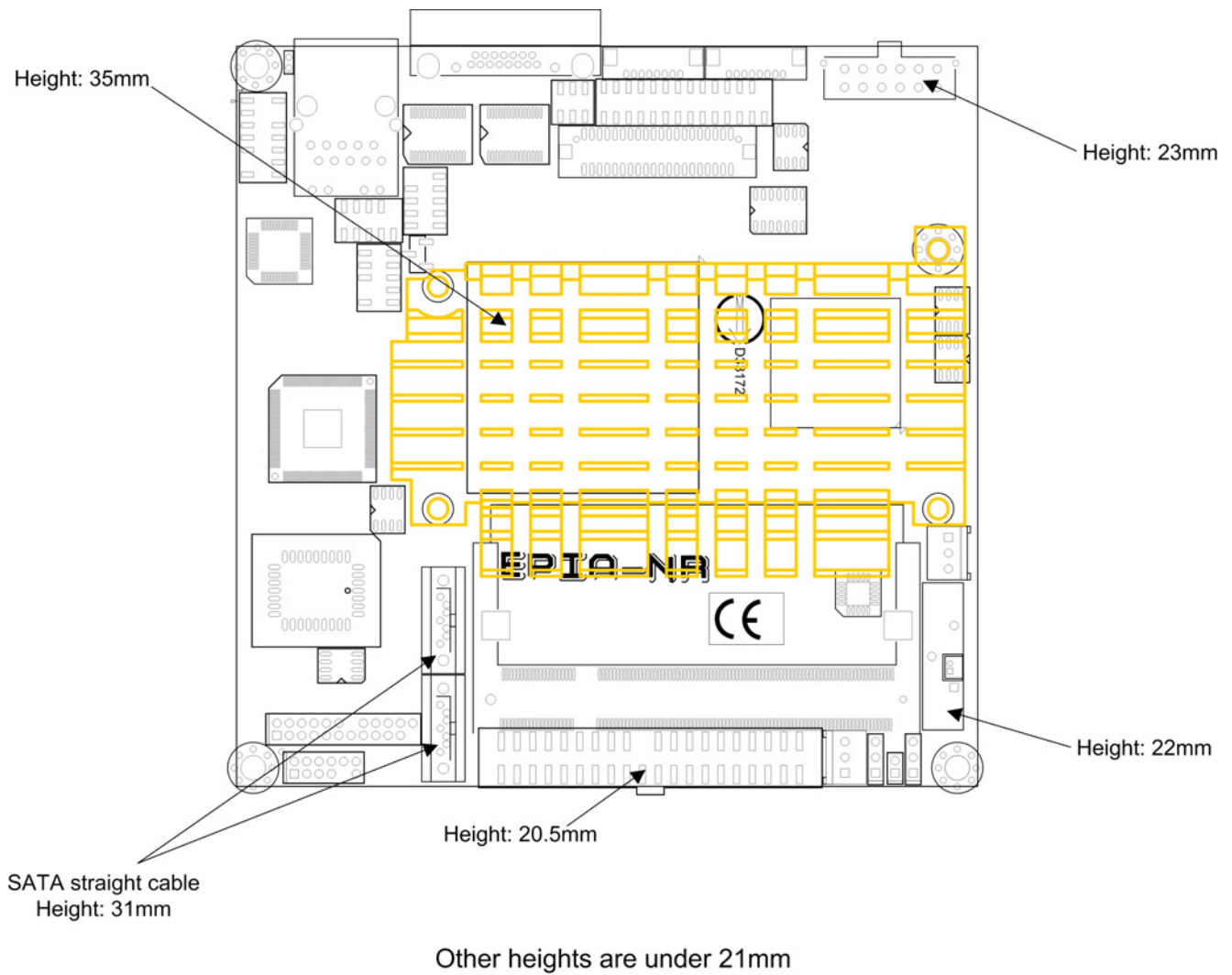
The EPIA NR's ultra compact 12cm x 12cm, integrated design supports all the standard legacy x86 connectivity options as well as one VGA port and one RJ45 LAN port.



VIA EPIA NR-Series Layout Diagram & Mounting Holes



VIA EPIA NR-Series Layout Diagram & Height Distribution



Power Consumption

Power consumption tests were carried out comparing the VIA EPIA NR10000EG (running with the VIA 1.0GHz C7[®] V4 Bus NanoBGA2 processor). The following tables are a comprehensive breakdown of the EPIA platform's voltage, amp and wattage values while running common system applications.

VIA EPIA NR10000EG

A. IDEL Status

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.233	1.619	5.234
Main Board +5V	5.046	1.030	5.197
Main Board 5VSB	4.943	0.044	0.217
Main Board +12V	12.022	0.070	0.842
Main Board Power Consumption			11.490

B. MP3 Playing – Media Player

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.215	1.843	5.925
Main Board +5V	5.019	1.647	8.266
Main Board 5VSB	4.926	0.055	0.271
Main Board +12V	12.027	0.069	0.830
Main Board Power Consumption			15.292

C. DVD Playing – Power DVD 5.0

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.196	1.858	5.938
Main Board +5V	5.022	1.611	8.058
Main Board 5VSB	4.908	0.055	0.270
Main Board +12V	12.004	0.070	0.840
Main Board Power Consumption			15.106

D. Data Download from Network

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.225	1.788	5.766
Main Board +5V	5.035	1.151	5.795
Main Board 5VSB	4.934	0.480	0.237
Main Board +12V	12.019	0.070	0.841
Main Board Power Consumption			12.639

E. Run C.C. Winstone 2004

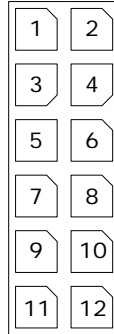
	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	3.221	1.629	5.247
Main Board +5V	5.012	1.641	8.225
Main Board 5VSB	4.920	0.060	0.295
Main Board +12V	12.025	0.070	0.842
Main Board Power Consumption			14.609

F. S3 Mode

	Measured Voltage	Measured Amp.	Watts
Main Board +3.3V	0.005	0.000	0.000
Main Board +5V	0.065	0.000	0.000
Main Board 5VSB	4.992	0.103	0.514
Main Board +12V	0.000	0.005	0.000
Main Board Power Consumption			0.514

Power Specifications

The EPIA NX utilizes a special 12-pin Nano-ITX power supply connecto. Due to the EPIA NX platform's ultra low power requirements a 90 – 120 Watt power supply is ample for even the heaviest of multimedia system applications.



1	+3.3V	2	+3.3V
3	+3.3V	4	+5VSUS
5	GND	6	+12V
7	-PSON	8	+5V
9	GND	10	+5V
11	GND	12	PWRGD

VIA EPIA NR-Series Microsoft and Linux Driver Support

Microsoft Driver Support

VIA EPIA NR 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 NR 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

For more information on the VIA EPIA NR-Series Nano ITX Mainboard contact your sales representative or visit our website at www.viaembedded.com

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