



Operating Guide

EPIA-P700 Mainboard

Table of Contents

Table of Contents	i
VIA EPIA-P700 Overview	1
VIA EPIA-P700 Layout	2
VIA EPIA-P700 Specifications	3
VIA EPIA-P700 Processor SKUs	4
VIA VX700 Chipset Overview	5
VIA EPIA-P700 Companion I/O Boards	6
VIA EPIA-P700 Dimensions	7
VIA EPIA-P700 Height Distribution (top)	8
VIA EPIA-P700 Height Distribution (bottom)	9
Power Consumption	10
VIA EPIA-P700-10L	10
A. With External HDD Power	10
B. With Internal HDD Power	10
VIA EPIA-P700-05LE	11
A. With External HDD Power	11
B. With Internal HDD Power	11
Power Specifications	12
VIA EPIA-P700 Microsoft and Linux Driver Support	13
Microsoft Driver Support	13
Linux Driver Support	13
Contact	14

VIA EPIA-P700 Overview

The VIA EPIA-P700 Pico-ITX Mainboard is an ultra compact native x86 platform. The mainboard is based on the VIA VX700 Unified Digital Media IGP chipset featuring the VIA C-Pro II with 2D/3D graphics and video accelerators for rich digital media performance.

The VIA EPIA-P700 includes a choice of onboard processors: VIA C7[®] NanoBGA2 or Eden[™] ULV NanoBGA2. The VIA C7[®] NanoBGA2 processor is powerful, secure, and efficient. The VIA Eden[™] NanoBGA2 processor is ultra-efficient while still maintaining enhanced security features.

The VIA EPIA-P700 supports up to 1 GB of 533 MHz DDR2 memory. The VIA EPIA-P700 provides support for high fidelity audio with its included VIA VT1708B High Definition Audio codec. In addition it supports one SATA (1.5 Gbps) storage device.

To keep the profile of the EPIA-P700 low, all of the usual I/O ports are removed in favor of onboard connectors. Additionally, the conventional CMOS battery holder has been replaced with a cabled battery — allowing flexibility in battery placement.

The VIA EPIA-P700 is bundled with two companion IO boards: P700-A and P700B. P700-A contains the LAN, VGA, and COM ports. A separate DVI-D port cable is included for use with the P700-A DVI-D pin header. P700-B contains the USB 2.0 and audio ports.

The VIA EPIA-P700 is compatible with a full range of Pico-ITX chassis as well as FlexATX and MicroATX enclosures and power supplies. The VIA EPIA-P700 is fully compatible with Microsoft[®] and Linux operating systems.

VIA EPIA-P700 Layout

VIA EPIA-P700 Mainboard (Dimension 10 cm x 7.2 cm)

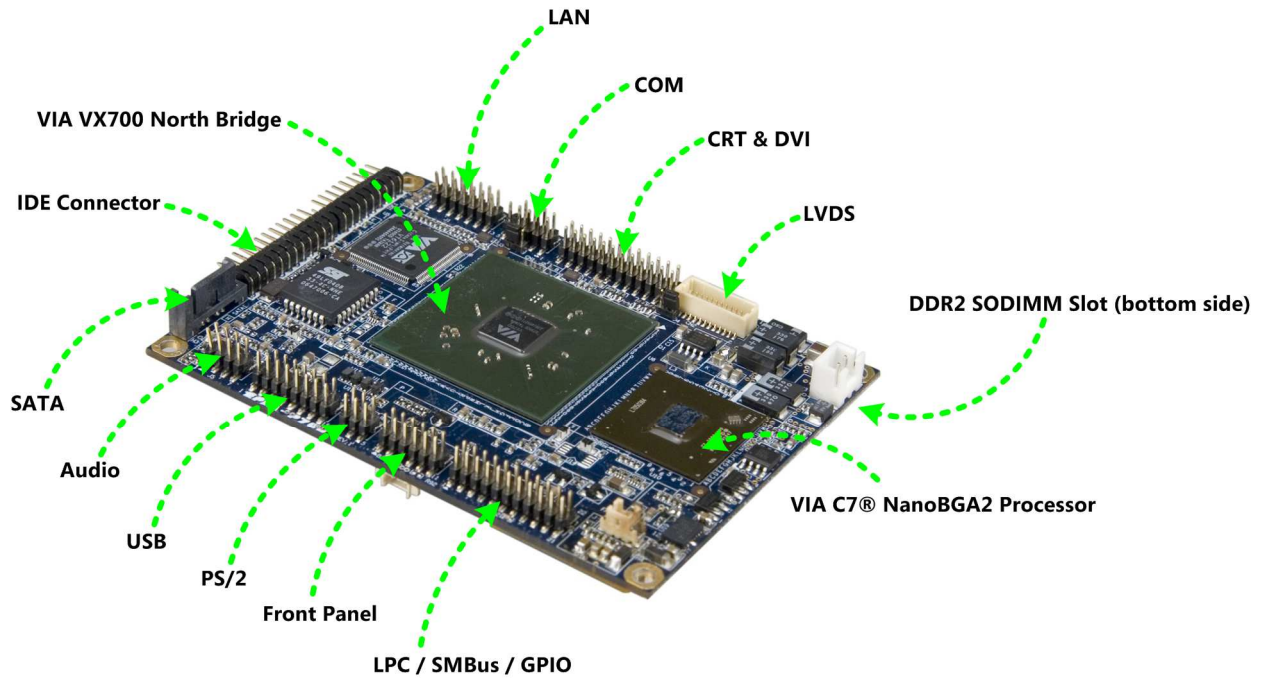


Figure 1: Layout of EPIA-P700

VIA EPIA-P700 Specifications

Model Name	- EPIA-P700-10L - EPIA-P700-05LE
Processor	- VIA C7 [®] 1.0 GHz NanoBGA2 processor fan sink - VIA Eden™ ULV 500 MHz NanoBGA2 processor with heat sink
Chipset	- VIA VX700 Unified Digital Media IGP Chipset
System Memory	- 1 x DDR2 667*/533 SODIMM slot - Up to 1 GB memory size
VGA	- Integrated VIA C-Pro II 2D/3D AGP graphics with MPEG-2 and WMV9 video decoding acceleration
Onboard IDE	- 1 x UltraDMA 133/100 pin connector (2.0 mm 44-pin right-angle)
Onboard SATA	- 1 x SATA connector - 1 x SATA 5V power connector
Onboard LAN	- 1 x VIA VT6122 Gigabit LAN controller (default) - 1 x VIA VT6107 10/100 Mbps Fast Ethernet controller (manufacturing option)
Onboard Audio	- VIA VT1708B High Definition Audio Codec
Onboard I/O Connectors	- 1 x LAN pin header - 1 x CRT/DVI pin header - 1 x COM pin connector - 1 x CPU fan pin connector - 1 x Audio pin connector for Line-in, Line-out, Mic-in - 1 x Front panel pin header - 4 x USB 2.0 port pin header - 1 x PS/2 keyboard/mouse pin header - 1 x LVDS pin connector - 1 x LPC/SMBus/GPIO pin header - 1 x +12V DC-in 2-pin jack with lock
BIOS	- Award BIOS - 4/8 Mbit flash memory
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	- Pico-ITX (10-layer) - 10 cm x 7.2 cm

* This specification is subject to change without prior notice.



Note:

DDR2 667 MHz memory modules can be used, but the effective speed will be 533 MHz.

VIA EPIA-P700 Processor SKUs

The VIA EPIA-P700 is available in two speed grades as follows:

- 1.0 GHz VIA C7[®] NanoBGA2 Processor
- 500 MHz VIA Eden[™] ULV NanoBGA2 Processor

VIA VX700 Chipset Overview

The VIA VX700 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 VX700 features VIA C-Pro II 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 LAN, SATA (1.5 Gbps), and ATA/133.

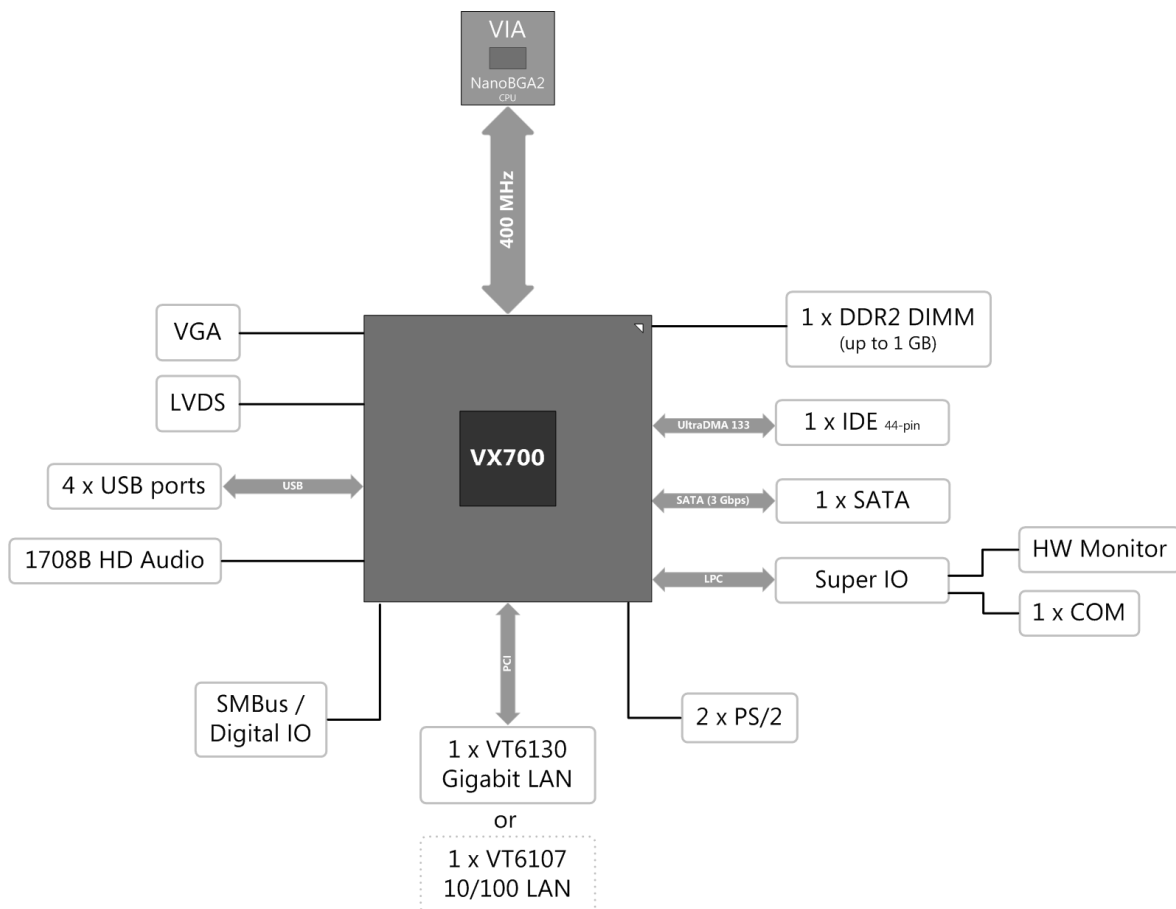


Figure 2: VX700 as implemented in EPIA-P700

VIA EPIA-P700 Companion I/O Boards

The VIA EPIA-P700 mainboard comes in the ultra compact 10 cm x 7.2 cm Pico-ITX form factor. In addition to its integrated on-board pin headers, the EPIA-P700 has two companion I/O boards: P700-A and P700-B.

The P700-A companion IO board includes the following IO ports: COM port, VGA port, and RJ45 LAN port. A DVI-D pin header is also available on the P700-A.

The P700-B companion IO board includes the following IO ports: four USB 2.0 ports and audio jacks. In addition, the P700-B also has the following pin headers: PS/2 keyboard/mouse pin header, front panel pin header, SMBus pin header, LPC pin header, one USB pin header, and GPIO pin header.

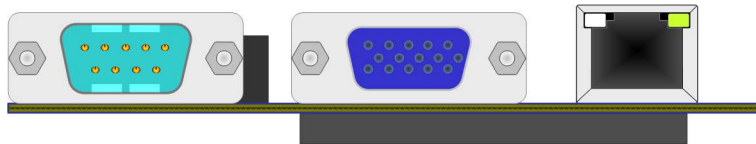


Figure 3: P700-A companion board

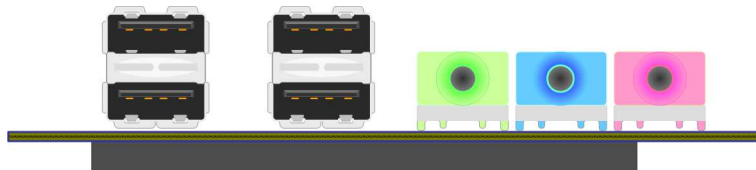


Figure 4: P700-B companion board

VIA EPIA-P700 Dimensions

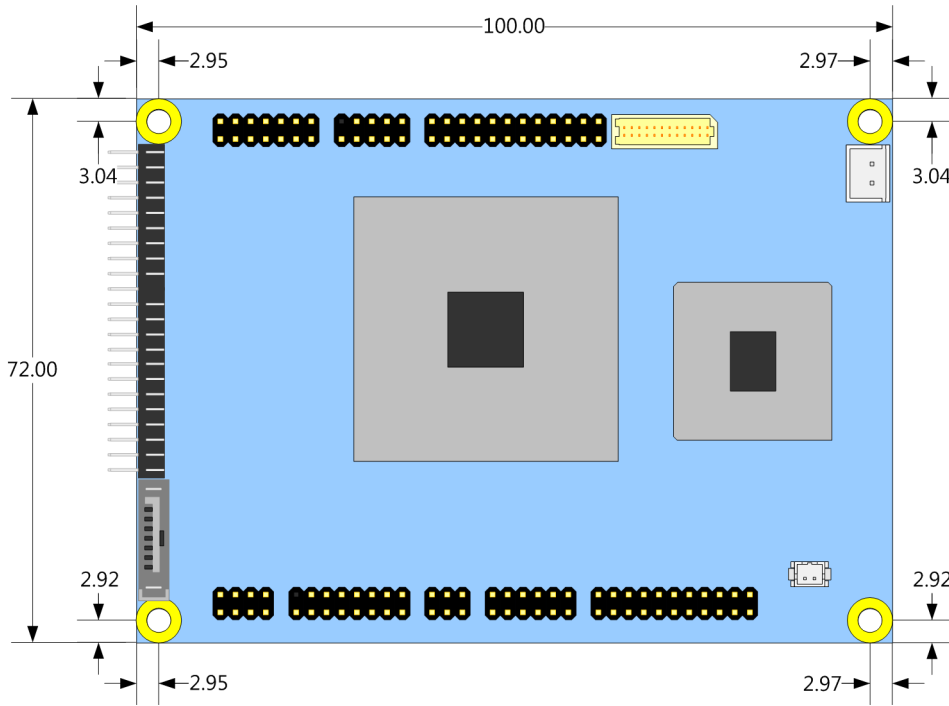
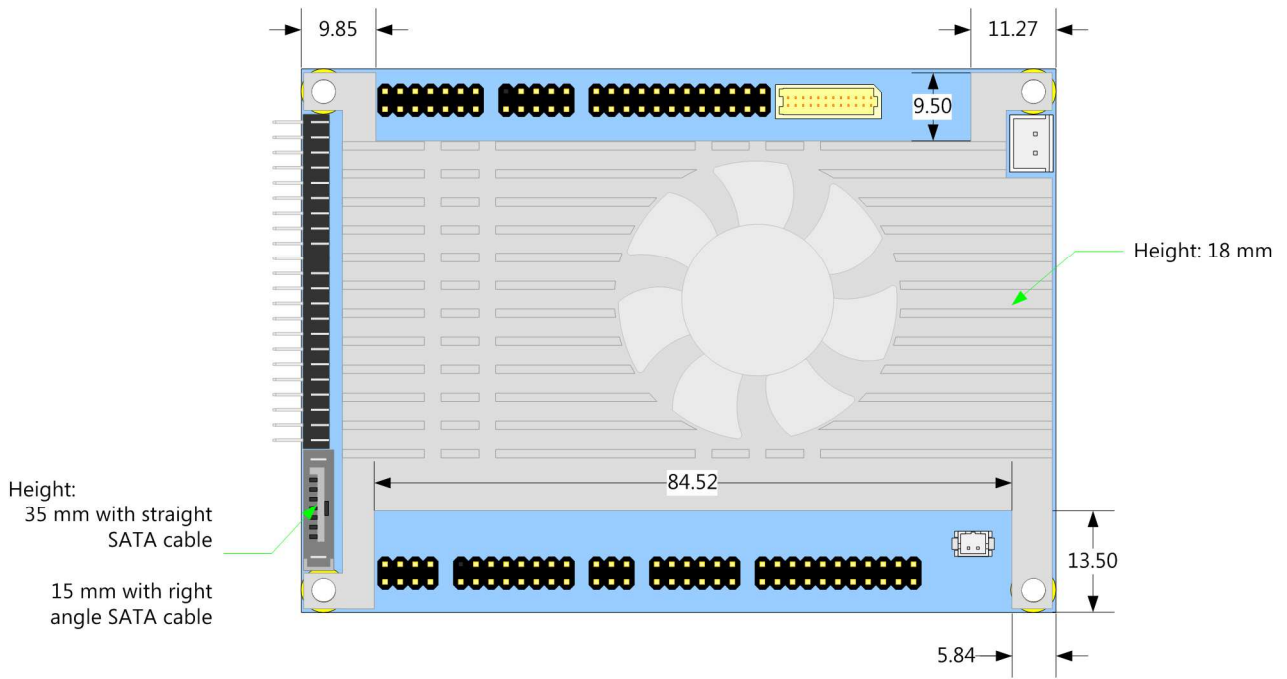


Figure 5: Dimensions and mounting hole layout



Note:
The mounting holes at the four corners can only fit M2 size screws (Ø1.86 mm – Ø1.89 mm).

VIA EPIA-P700 Height Distribution (top)



All other height is under 15 mm

Figure 6: Height distribution of the top side and heat sink layout

VIA EPIA-P700 Height Distribution (bottom)

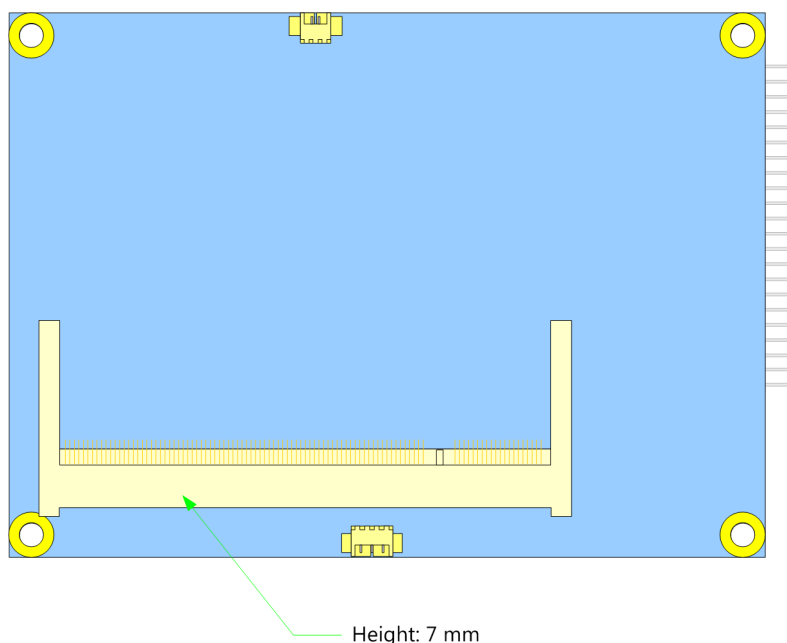


Figure 7: Height distribution of the bottom side

Power Consumption

Power consumption tests were performed on the VIA EPIA-P700 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-P700-10L

A. With External HDD Power

	Measured Voltage	Measure Amp	Watts
Boot to Idle	11.88	0.82	9.742
Max98	11.88	0.78	9.266
3DMark 2001	11.88	0.97	11.524
WinDiag V2.07b	11.88	0.89	10.573
Passmark V3.0	11.88	0.91	10.811
CC Winstone 2004	11.88	1.05	12.474

B. With Internal HDD Power

	Measured Voltage	Measure Amp	Watts
Boot to Idle	11.88	0.99	11.761
Max98	11.88	0.94	11.167
3DMark 2001	11.88	1.15	13.662
WinDiag V2.07b	11.88	1.11	13.187
Passmark V3.0	11.88	0.96	11.405
CC Winstone 2004	11.88	0.99	11.761

VIA EPIA-P700-05LE
A. With External HDD Power

	Measured Voltage	Measure Amp	Watts
Boot to Idle	11.84	0.80	9.472
Max98	11.84	0.67	7.933
3DMark 2001	11.84	0.93	11.011
WinDiag V2.07b	11.84	0.82	9.709
Passmark V3.0	11.84	0.78	9.235
CC Winstone 2004	11.84	0.90	10.656

B. With Internal HDD Power

	Measured Voltage	Measure Amp	Watts
Boot to Idle	11.84	0.94	11.130
Max98	11.84	0.84	9.946
3DMark 2001	11.84	1.12	13.261
WinDiag V2.07b	11.84	0.93	11.011
Passmark V3.0	11.84	0.87	10.301
CC Winstone 2004	11.84	0.99	11.722

Power Specifications

The VIA EPIA-P700 mainboard utilizes a +12V DC-in power connector for providing power to the mainboard. The dimensions of the DC-in port are show in the figure below.

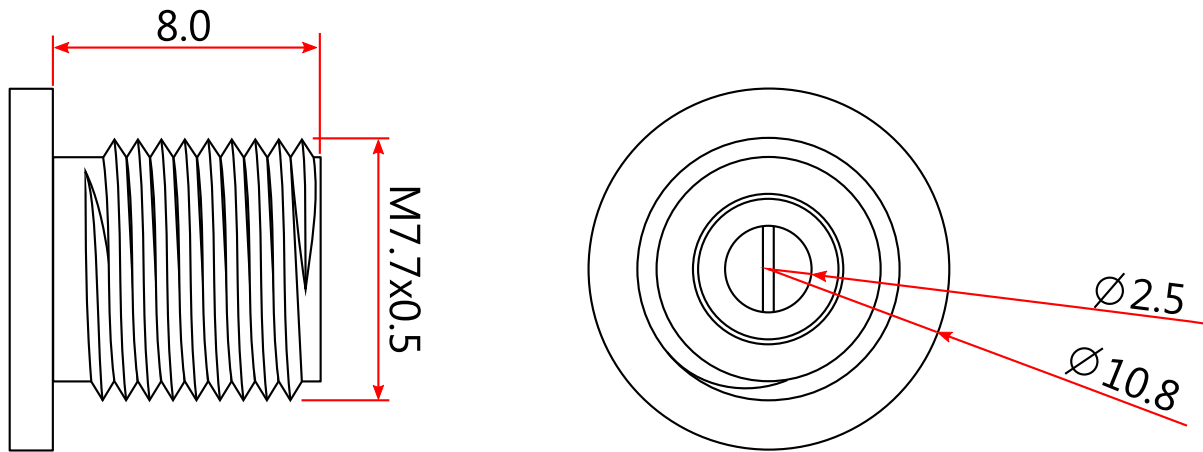


Figure 8: DC-in dimensions

VIA EPIA-P700 Microsoft and Linux Driver Support

MICROSOFT DRIVER SUPPORT

The VIA EPIA-P700 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.NET and Windows XP Embedded), the related drivers can be found in the VIA Arena website at www.viaarena.com.

LINUX DRIVER SUPPORT

The VIA EPIA-P700 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 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](#) at VIA Arena, or through your VEPD support contact. Alternatively, VIA can work further towards providing additional drivers to fit your specific needs.

Contact

For more information on the VIA EPIA-P700 Pico-ITX mainboard contact your sales representative or visit our website at www.viaembedded.com

**Taiwan Headquarters**

1F, 531 Zhong zheng Road
Xindian District, New Taipei City 231,
Taiwan

TEL: 886.2.2218.5452

FAX: 886.2.2218.5453

Email: embedded@via.com.tw

**USA**

940 Mission Court
Fremont, CA 94539
USA

TEL: 1.510.683.3300

FAX: 1.510.687.4654

Email: embedded@viatech.com

**Europe**

In den Dauen 6
53117 Bonn
Germany

TEL: 49.228.688565.0

FAX: 49.228.688565.19

Email: embedded@via-tech.de

**China**

Tsinghua Science Park Bldg. 7
No. 1 Zongguancun East Road
Haiden District, Beijing 100084

TEL: 86.10.59852288

FAX: 86.10.59852299

Email: embedded@viatech.com.cn

**Japan**

3-15-7 Ebisu MT Bldg. 6F
Higashi, Shibuya-ku
Tokyo 150-0011

TEL: 81.3.5466.1637

FAX: 81.3.5466.1638

Email: embedded@viatech.co.jp

**Korea**

2F, Sangjin Bldg., 417
Dogok-Dong, Gangnam-Gu
Seoul 135-854

TEL: 82.2.571.2986

FAX: 82.2.571.2987

Email: embedded@via-korea.com