

**EmbeddedDNA<sup>®</sup>**



***MEC-2050***  
***PC/104 DURACHASSIS 5X5 机箱***

**用户手册**

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## 定义与注释

下表中图标的注释适用于该手册。

图标	通知类型	描述
	注意	重要信息和规定
	警告	提醒您注意对系统潜在的损坏或可能对人员造成的伤害

## 废弃物丢弃说明

处理本设备时，建议根据当地的废物处理法规将各个元件分开处理。确保已用电池的丢弃按当地废物法规。勿将电池丢入火中（易爆）或普通废物罐。



当产品本身或其包装上印有此标记时，说明产品不能当作普通家庭废弃物一样处理，而应当将废弃物送往专门的电子电气垃圾回收处理中心。正确处理此类垃圾，能够避免对周围的环境和人体健康造成的伤害和不良影响。欲获取更多的相关产品处理和回收办法，您可以联系当地相关机构，或回收服务中心等。



# 目录

---

定义与注释 .....	3
废弃物丢弃说明 .....	3
<b>目录.....</b>	<b>5</b>
<b>第一章 简介.....</b>	<b>7</b>
DuraChassis 机箱介绍 .....	8
产品特性 .....	8
规范 .....	8
PC/104 概述.....	9
<b>第二章 组成部件 .....</b>	<b>11</b>
组成部件.....	12
<b>第三章 组装步骤 .....</b>	<b>15</b>
步骤 1: 将所有的 PC/104 部件进行堆栈 .....	16
步骤 2: 将 2 个滑轨用螺栓连接在端盖上, 开始组装滑轨卡架 .....	17
步骤 3: 将PC/104 卡插入卡架, 安装剩下的两个滑轨.....	19
步骤 4a: 将减震器安装在卡架上 (仅适用于抗震版) .....	20
步骤 5: 将卡架插入机箱 .....	22
步骤 6a: 安装Dust端盖 (仅适用于Dust版).....	23
步骤 6b: 安装NEMA端盖 (仅适用于NEMA版).....	25
<b>第四章 排除故障 .....</b>	<b>27</b>
技术和销售支持 .....	28

返修服务 .....	28
<b>Appendix .....</b>	<b>29</b>
A.1 Safety Summary .....	30
<i>Ground the Instrument</i> .....	30
<i>Do Not Operate in an Explosive Atmosphere</i> .....	30
<i>Keep Away From Live Circuits</i> .....	30
<i>Use Caution When Exposing or Handling the CRT</i> .....	30
<i>Do Not Substitute Parts or Modify Equipment</i> .....	30
<i>Observe Dangerous Procedure Warnings</i> .....	30
<i>Flammability</i> .....	31
<i>EMI Caution</i> .....	31
<i>CE Notice</i> .....	31
<i>Disclaimer of Warranty</i> .....	31
<i>Notice</i> .....	31
<i>Reliability</i> .....	31
<i>Life Support Policy</i> .....	32
<b>Glossary .....</b>	<b>33</b>
<b>Acronyms and Abbreviations.....</b>	<b>39</b>

# 第一章 简介

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## DuraChassis 机箱介绍

DuraChassis 压铝制 PC/104 机箱是目前市场上具有代表性的、易于使用的加固型 PC/104 机箱之一。它由重量轻、经过阳极化处理的铝制成。这是一个具有可移动的滑轨卡架部件的机箱系统，专为降低振动的影响和便于插拔机箱内部的板卡而设计。

DuraChassis 机箱使 PC/104 系统的实用性上升到行业级的最高水平，便于根据不同的应用领域进行重新配置和升级。该机箱的设计采用了挤压固定的橡胶轨，与传统的隔离支架相比，它提供了更简易的板卡插拔方法。在卡架中可以安全地放置 5 个 PC/104 板卡，滑轨槽与板卡有 4 个固定连接点，可以通过取掉 4 个螺钉来移动卡堆栈里的任何一个 PC/104 模块。

该机箱具有抗强冲击震动的能力，适应于在移动、空运、海运和其它特殊的嵌入式 PC/104 环境中运行。安装在滑轨卡架周围的 59 个硬度计 Silastic® 硅胶减震器的重力负荷因子 (G-Loads) 为 10，这有效地降低了 PC/104 系统的重力负荷。这些特殊的减震器都经过了严格的实地测试，能够满足 MIL-STD 的要求。对于低冲击/震动的应用，DuraChassis 提供了塑料滑轨垫片（而非隔震器）。

DuraChassis 采用了 6.0" 的标准长度，能够容纳多达 5 个 PC/104 卡。它使用 Dust 端盖或 NEMA 端盖防尘、防水溅。Dust 端盖恰好与机箱末端齐平，而 NEMA 端盖比较厚，其盖缘可以包围机箱末端，使其对外界环境的封闭性更好，通过可选配的垫圈（屏蔽电磁干扰的镀镍石墨或者橡胶垫圈）能使其达到 NEMA 4X 级保护标准。端盖是空白的（不带接口），但是也可以收取少量的费用定制定制化的端盖。

DuraChassis 机箱底部有榫槽，可以与可选配的铝基板契合便于固定在墙壁或者其它位置上。机箱内部在两面隔板上加入散热槽，扩大了表面积，使 PC/104 系统更容易散热。

### 产品特性

- 由 T6061 压铝合金制成
- 提供可达 NEMA 4X 的保护（垫圈可选配）
- 可移动的卡架
- 灰色/完全抛光处理
- 卡架周围有 0.5" 空间用于连线
- 内部抗冲击/震动或者刚性连接
- 内部可安装多达 5 个 PC/104 模块
- 压铝制底部有用于安装底板的槽
- 简单快速组装和拆卸 PC/104 卡架（无需隔离支架）
- 内部散热槽进行散热

### 规范

- 减震器：59 个硬度计 Silastic® 树脂橡胶
- 机箱尺寸：内部 5.0" x 5.0"，外部 5.3" x 5.3"，板厚 0.15"；长度：6.0"
- 容量：5 个 PC/104 模块 (6" 机箱)
- 卡架：阳极化处理铝制轨，镀镍端盖
- 卡架尺寸：4.0" x 4.0" – 长度：4.0"
- 端盖重量和尺寸：Dust 端盖：0.22 磅或更少，5.3" x 5.3" x .062"；NEMA 端盖：0.45 磅或更少，5.5" x 5.5" x 0.375"
- NEMA 抗震版：



为恶劣的环境设计，防尘/防水/防电磁干扰和抗震动/抗冲击隔离要求，隔离垫圈可选。

- **Dust抗震版：**  
为标准环境设计，抗震动/抗冲击隔离要求。

### **PC/104 概述**

PC/104 特点有：小尺寸结构 (3.550" x 3.775")、堆栈式 104 管脚的 ISA 总线接口及其更低的总线信号驱动，它的尺寸、可持久性、可扩展性、可靠性、高质量、低功耗使其非常适合于嵌入式计算。用户在桌面 PC 系统中能够找到的每一种功能，都可以在 PC/104 系统中实现，这大大缩短了嵌入式系统的开发周期和投入市场的时间。您可以从下面的链接地址了解到 PC/104 的详细规范：

[http://www.pc104.org/technology/pc104\\_tech.html](http://www.pc104.org/technology/pc104_tech.html)



## 第二章 组成部件

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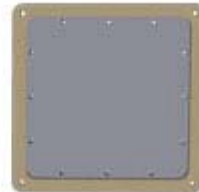
## 组成部件

一个 DuraChassis 机箱包括以下部件：

**(1) 一个 5.3" x 5.3" 铝制外壳** – 长度 6.0"；内部尺寸为 5.0" x 5.0" 的完全抛光压铝制外壳；厚度 0.15" 的壁板，上有间隔 0.10" 的凹槽以利于冷却。



**(2) 2 个 5.3" x 5.3" Dust 端盖或 5.5" x 5.5" NEMA 端盖** – 铝制 Dust 端盖厚度为 0.062"；铝制 NEMA 端盖包括一个 5.0" x 5.0" x .062" 的内部金属板，以及一个用来固定该内板的 5.5" x 5.5" x 0.375" 的外部环形盖缘。标准的端盖是空白的（没有接口）。根据特殊需求可以定制端盖。



**(24) 24 个圆头六角螺丝钉，4/40 x 0.1875"** (仅用于 NEMA 端盖) – 其中 12 个把内部的 NEMA 端盖板固定到外部的环形盖缘上。



**(8) 8 个盘头菲利普螺丝钉，#6-32 x 0.500"** – 其中 4 个把每个 Dust 端盖 或者 NEMA 环形盖缘固定到 5.3" x 5.3" 的机箱上。



**(8) 8 个 #6 平面尼龙垫圈, 0.312" x 0.140" x 0.032"** – 其中 4 个与 Dust 端盖或者 NEMA 端盖上的 4 个 6-32 x 0.500" 的菲利普螺丝钉配合使用。



**(4) 4 个 卡架滑轨** – 镀黑铝板, 带有橡胶垫, 以适应 0.6" 标准的 PC/104 板卡间隔, 以及非标准板间隔 (包括接口模块以及 PC/104 规范中位于 "keep-out" 区域的其它模块), 长度为 4.0"



**(2) 两个 卡架端盖** – 在 4 个卡架滑轨上, 每个滑轨末端都放置了两个 4.0" x 4.0" 镀锌端盖。端盖中间有一个 3.0" 的方孔以便内部通风。



**(8) 8 个 #4 半圆头六角螺丝钉, 40 x 0.1875"** – 其中 4 个螺丝钉用在卡架端盖上, 用以固定滑轨。



#### **(8) 8 个 减震器**

(仅用于抗震版) – 6.0" DuraChassis 机箱包括 8 个硅胶减震器, 它们安装在卡架上, 计示硬度为 59。减震器旨在降低 PC/104 系统在空间受到的重力负荷, 其重力负荷 (G-Loads) 因子高达 10。减震器内的 4/40 六角螺丝钉将其固定在 4 个卡架滑轨上。



**(4) 减震器塑料塞** (仅用于抗震版) – 减震器两端各有两个塑料塞, 保证卡架在机箱中的安全, 防止可能造成的移动。





## 第三章 组装步骤

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## 步骤 1： 将所有的 PC/104 部件进行堆栈

**所需部件：** 用户提供的 PC/104 部件以及线缆

将用户提供的所有 PC/104 系统板按照图 1 所示进行堆栈，将 104 针插入 socket 总线接口，将所有需要的线缆接好。之后先暂时把板卡堆栈放在一旁待用。

**注意：** DuraChassis 的滑轨卡架摒弃了 PC/104 之间的隔离支架（很多传统的 PC/104 系统中仍然保留这种方式），这就大大简化了组装系统过程。

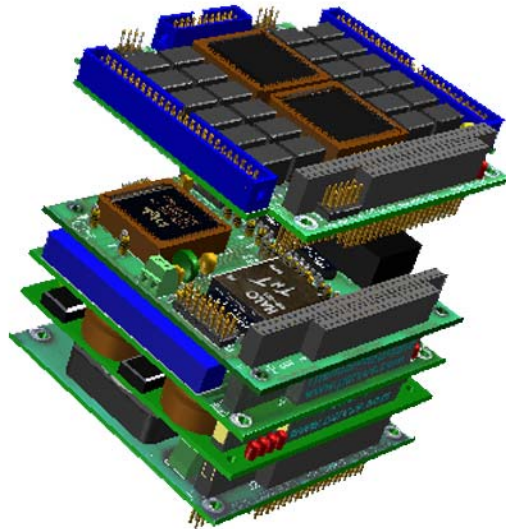


图 1. PC/104 板卡堆栈



## 步骤 2：将 2 个滑轨用螺栓连接在端盖上，开始组装滑轨卡架

**所需部件：** 2 个卡架端盖，2 个卡架滑轨，4 个 #4/40 x 0.1875" 半圆头六角螺丝钉

**所需工具：** 六角扳手

由于标准的 PC/104 电路板尺寸是 3.6" x 3.8"，每一个滑轨都有一个厚边、一个薄边。按照图 2 所示分别将两个滑轨安装在端盖上。如图 3 所示，确保端盖的开槽口向上。用 2 个 #4/40 螺丝钉将底部的滑轨固定在端盖两端。不要完全拧紧。

注意：让端盖的开槽口向上，安装另外两个滑轨之后，可以更容易地插入 PC/104 板卡堆栈，这样不需要拆卸整个机箱就可以方便地插拔板卡。

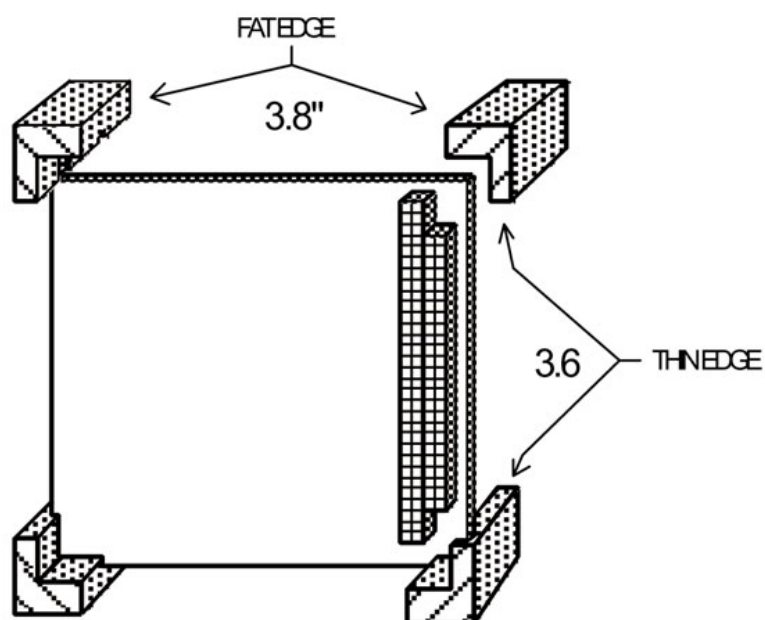


图 2. 卡架与滑轨的正确安装位置示意图



图 3. 将两个滑轨安装在卡架端盖上。

### 步骤 3: 将 PC/104 卡插入卡架, 安装剩下的两个滑轨

**所需部件:** PC/104 板卡堆栈、部分组装的卡架、剩下的两个滑轨、其余的 4 个 #4/40 x 0.1875" 半圆头六角螺丝钉

**所需工具:** 六角扳手

小心地将 PC/104 板卡堆栈插入滑轨卡架 (为了让板卡堆栈有更多的插入空间, 可以再将端盖螺丝钉拧松一点)。按照图 4 所示, 将剩余两个滑轨安装在端盖的上方两个角, 用两个 #4/40 六角螺丝钉固定在两边。如图 5, 待板卡堆栈完全插入, 等所有滑轨安装完毕, 拧紧 8 个螺丝钉。

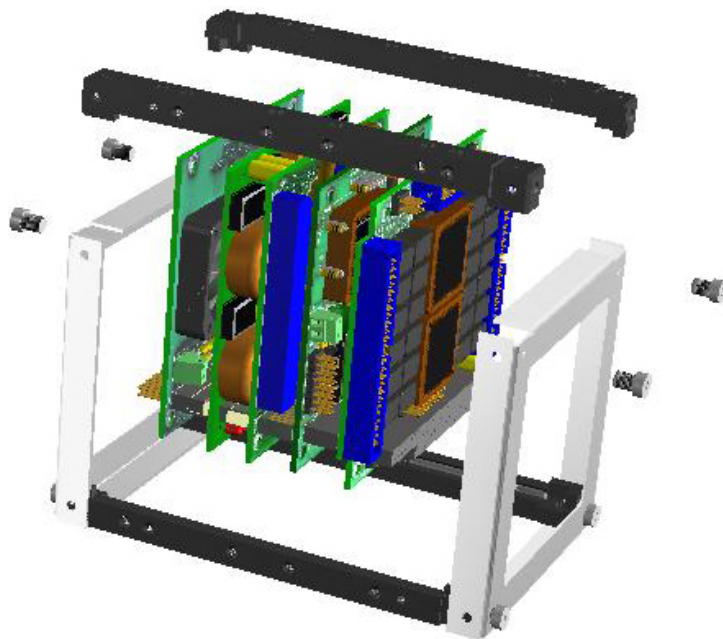


图 4. 插入 PC/104 板卡堆栈、安装剩余两个滑轨

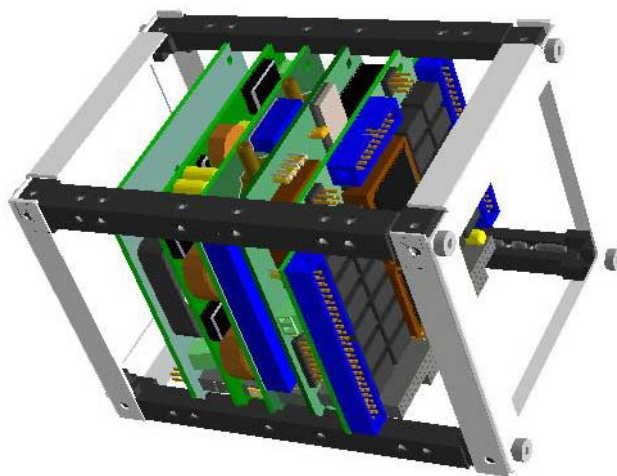


图 5. 插入 PC/104 板卡堆栈后组装卡架

### 步骤 4a: 将减震器安装在卡架上 (仅适用于抗震版)

**所需部件:** 装好板卡堆栈的 PC/104 卡架、8 个减震器、4 个减震塞

**所需工具:** 六角扳手 (用户自备)

抗震版 DuraChassis 通过在卡架上安装减震器来保证可移动滑轨式卡架的安全: 一共使用了 8 个减震器。卡架的 8 个角上各安装一个减震器, 4 个减震塞用来减小卡架和机箱端盖之间的接触。

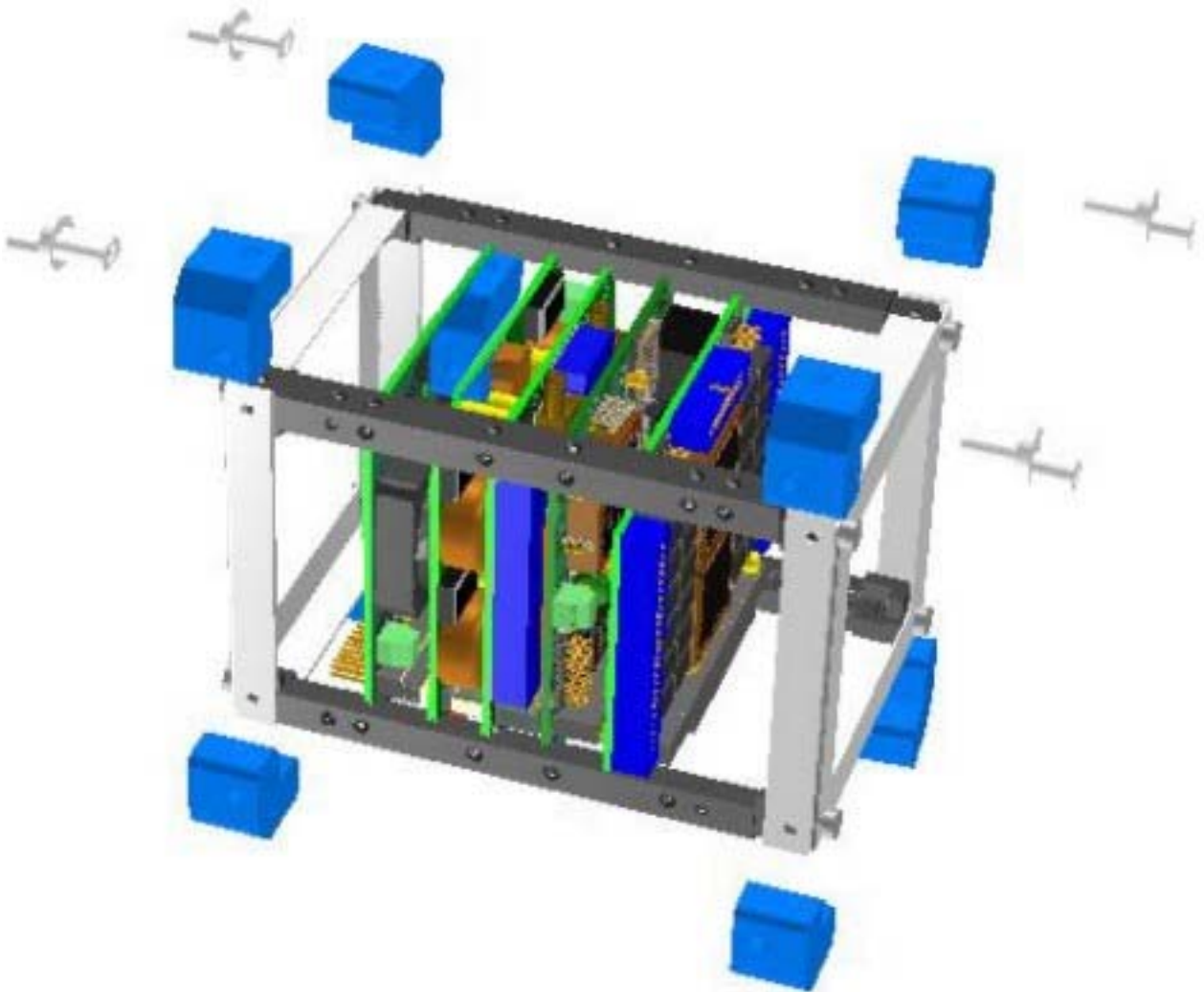


图 6. 将减震器和减震塞安装在卡架上

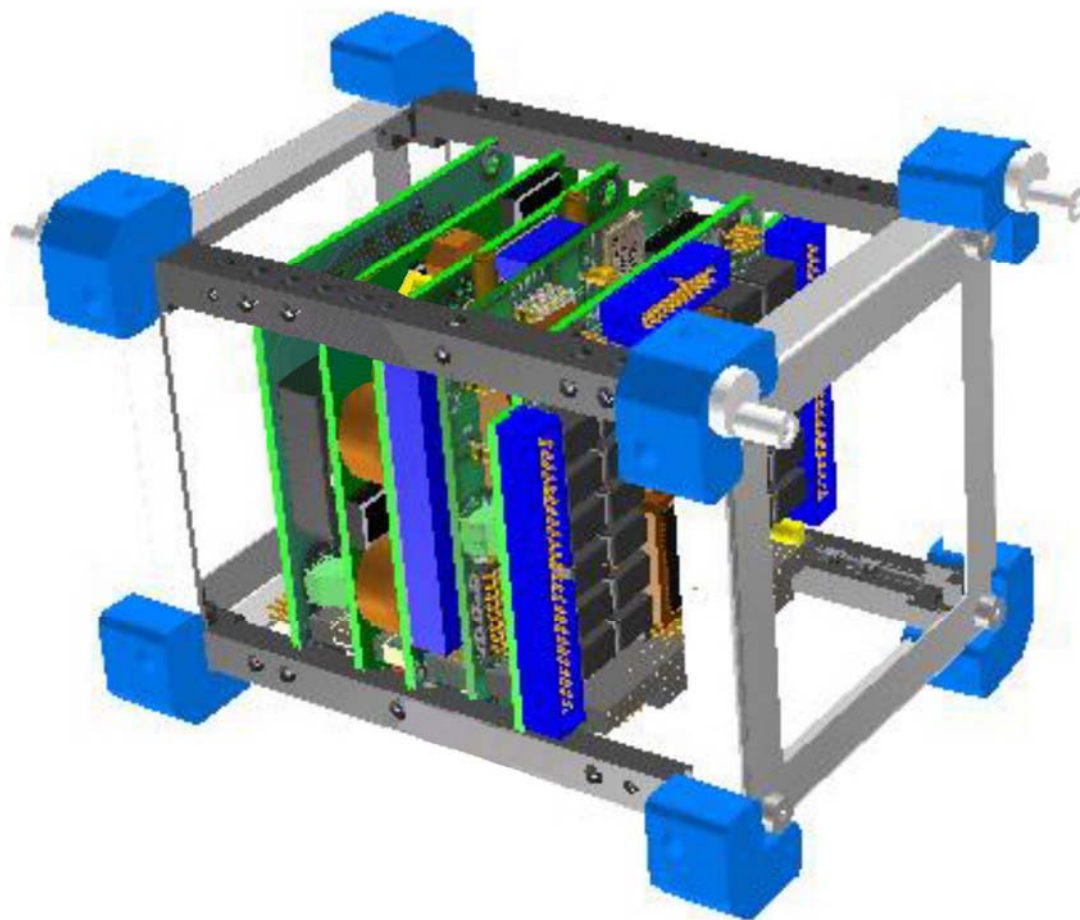


图 7. 将减震器安装在卡架上

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## 步骤 5：将卡架插入机箱

**所需部件：** 组装好的 PC/104 卡架、5.3" x 5.3" 铝制机箱

将减震器安装在卡架上之后，小心的将卡架顺滑轨插入 5.3" x 5.3"的 机箱。

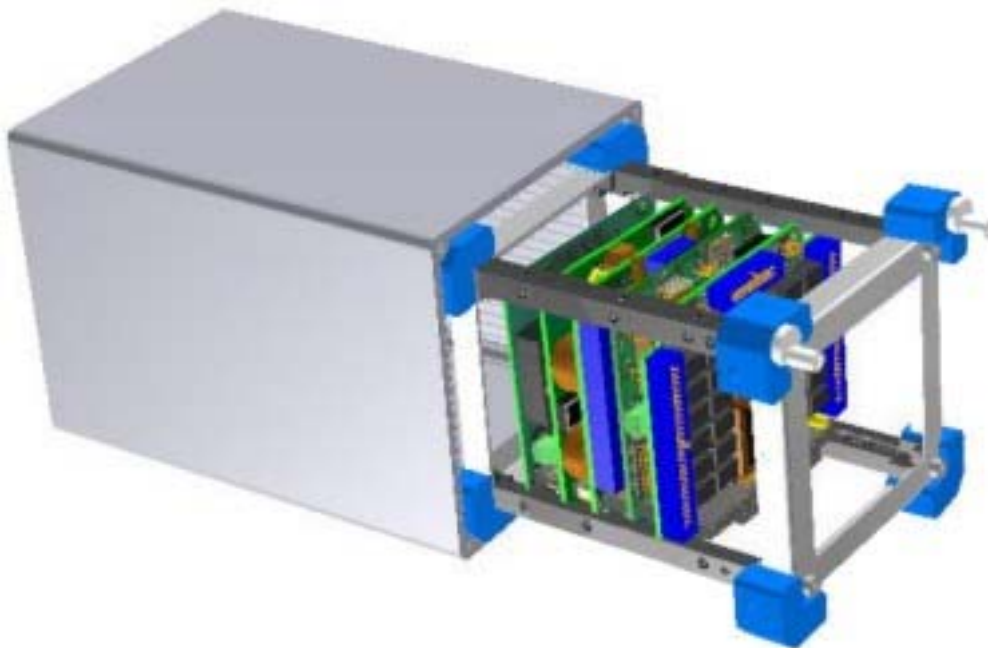


图 8. 将抗震卡架插入机箱

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## 步骤 6a: 安装 Dust 端盖 (仅适用于 Dust 版)

**所需模块:** 内置板卡堆栈的 5x5 机箱、8 个 #6-32 x 0.500" 菲利普螺丝钉, 8 个 #6 平面尼龙垫圈、两个 Dust 端盖、用户提供的接口

**所需工具:** 菲利普螺丝起子

端盖的每个角各用一个 #6-32 x 0.500" 菲利普螺丝钉和垫圈, 将两个 Dust 端盖安装在 5x5 机箱两端。尼龙垫圈能够防止端盖被划伤。

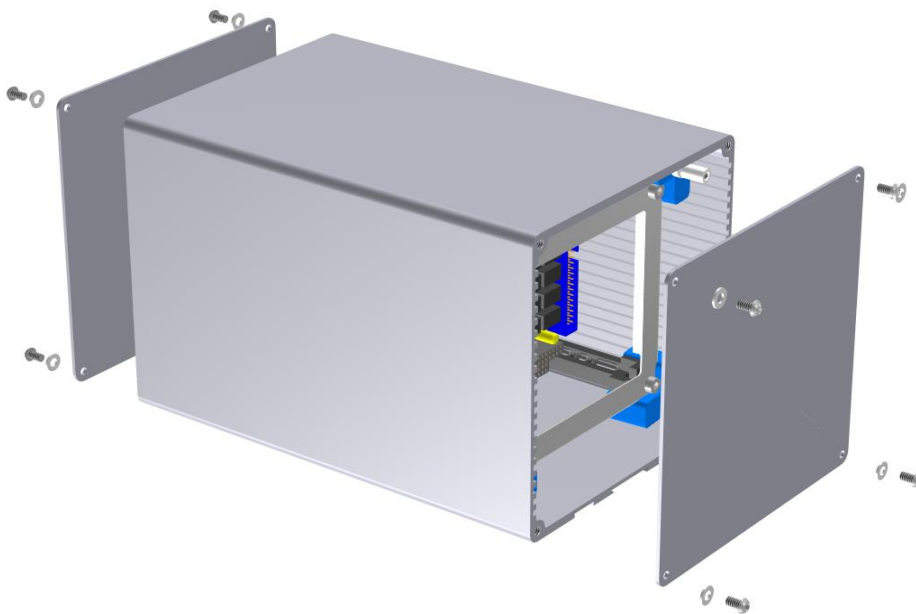


图 9. 安装端盖、螺丝和接口

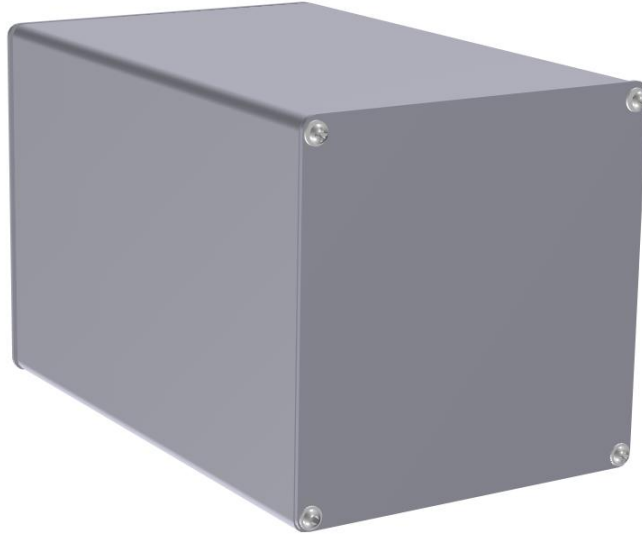


图 10. 组装好的带有用户接口的 DuraChassis (Dust 版)



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## 步骤 6b: 安装 NEMA 端盖 (仅适用于 NEMA 版)

**所需部件:** 内置板卡堆栈的 5x5 机箱、8 个 #6-32 x 0.500" 菲利普螺丝钉、8 个 #6 平面尼龙垫圈、带有 2 个端盖内板的两个 NEMA 端盖环、24 个 #4/40 x 0.1875 圆头螺丝钉

**所需工具:** 菲利普螺丝起子、六角扳手

如图 14 和 15 所示, 用 12 个 #4/40x0.1875 圆头螺丝钉将每个端盖板安装到环形盖上。使用用户提供的硬件把所有的 PC/104 系统外部接口安装到相应的 NEMA 端盖上。用 #6-32 x 0.500" 菲利普螺丝钉和垫圈将端盖 (内板以及外环) 固定在机箱上。

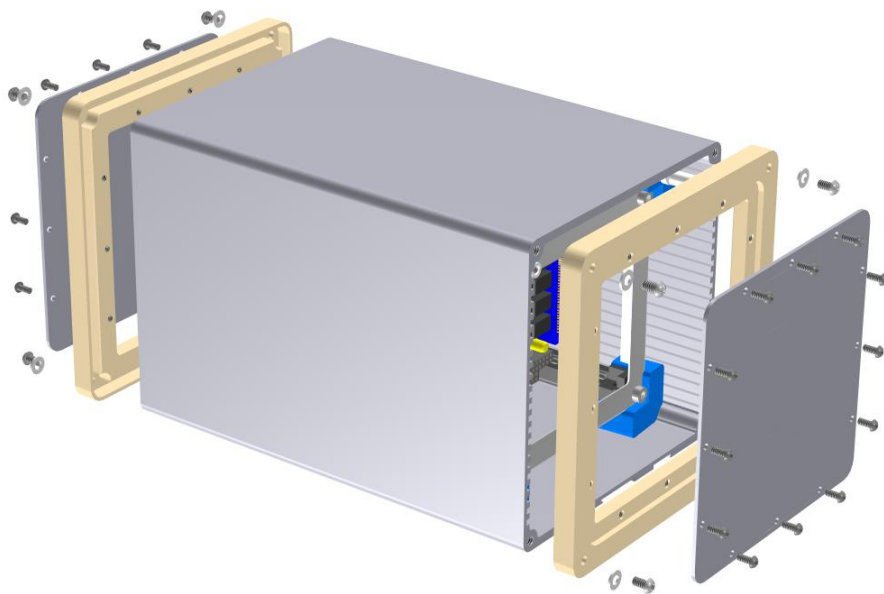


图 11. 安装 NEMA 端盖



## 第四章 排除故障

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## 技术和销售支持

若有技术问题，请联系 Eurotech 客户支持，或发电子邮件：

1. Email: [techsupp@eurotech.it](mailto:techsupp@eurotech.it)
2. Phone: +39-0433-485411
3. Fax: +39-0433-485499

您也可以联系离您最近的 Eurotech 销售公司，获得销售和商务方面的信息与帮助。

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## 返修服务

在返还任何Eurotech的产品前，请您先将您的型号、序列号、简短的错误描述以及您的详细联系方式发邮件给Eurotech技术部([e-mail: techsupp@eurotech.it](mailto:techsupp@eurotech.it))，您将获得一个RMA（返修认证）码。



**注意！返修任何产品必须有 RMA 码**

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# Appendix

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## A.1 Safety Summary

The following general safety precautions must be observed during all phases of operation, service, and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment. Eurotech SpA assumes no liability for the customer's failure to comply with these requirements.

The safety precautions listed below represent warnings of certain dangers of which Eurotech is aware. You, as the user of the product, should follow these warnings and all other safety precautions necessary for the safe operation of the equipment in your operating environment.

### ***Ground the Instrument***

To minimize shock hazard, the equipment chassis and enclosure must be connected to an electrical ground. The equipment is supplied with a three-conductor ac power cable; the power cable must be plugged into an approved three-contact electrical outlet, with the grounding wire (green) firmly connected to an electrical ground (safety ground) at the power outlet. The power jack and mating plug of the power cable meet International Electro technical Commission (IEC) safety standards.

### ***Do Not Operate in an Explosive Atmosphere***

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

### ***Keep Away From Live Circuits***

Operating personnel must not remove equipment covers. Only Factory Authorized Service Personnel or other qualified maintenance personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment. Do not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power and discharge circuits before touching them.

### ***Use Caution When Exposing or Handling the CRT***

Breakage of the Cathode-Ray Tube (CRT) causes a high-velocity scattering of glass fragments (implosion). To prevent CRT implosion, avoid rough handling or jarring of the equipment. Only qualified maintenance personnel using approved safety mask and gloves should do handling of the CRT.

### ***Do Not Substitute Parts or Modify Equipment***

Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification of the equipment. Contact Eurotech technical staff or your local representative for service and repair to ensure that safety features are maintained.

### ***Observe Dangerous Procedure Warnings***

Warnings, such as the example below, precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed. You should also employ all other safety precautions, which you deem necessary for the operation of the equipment in your operating environment.

## **Flammability**

All Eurotech PWBs (printed wiring boards) are manufactured by UL-recognized manufacturers, with a flammability rating of UL-V0.

## **EMI Caution**

This equipment generates, uses and can radiate electromagnetic energy. It may cause or be susceptible to electromagnetic interference (EMI) if not installed and used in a cabinet with adequate EMI protection.

## **CE Notice**

This product complies with the EMC Directive (89/336/EEC). Compliance with this directive implies conformity to the following European Norms:

- EN55022 (CISPR 22) Radio Frequency Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) Electromagnetic Immunity

The product also fulfills EN60950 (product safety), which is essentially the requirement for the Low Voltage Directive (73/23/EEC).

This product was tested in a representative system to show compliance with the above-mentioned requirements. A proper installation in a CE-marked system will maintain the required EMC/safety performance.

## **Disclaimer of Warranty**

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## **Reliability**

Eurotech has taken extra care of product design in order to ensure reliability. The two major ways in which reliability is achieved are:

- The product is designed in top-down fashion, utilizing the latest in hardware and software techniques, so unwanted side effects and unclear interactions between parts of the system are eliminated.

- Eurotech tests each board by exercising its functions, burns it in under power, and retests it to ensure that the infant mortality phase is passed before the product is shipped.

### ***Life Support Policy***

Eurotech products are not authorized for use as critical components in life support devices or systems without the express written approval of the president of Eurotech S.p.A.



# Glossary

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## A

### ATA

**Advanced Technology Attachment**, is a disk drive implementation integrating the controller on the disk drive. There are several versions of ATA:

- **ATA:** Known also as IDE, supports one or two hard drives, a 16-bit interface and PIO modes 0, 1 and 2.
- **ATA-2:** Supports faster PIO modes (3 and 4) and multiword DMA modes (1 and 2). Also supports Logical Block Addressing (LBA) and block transfers. ATA-2 is marketed as Fast ATA and Enhanced IDE (EIDE).
- **ATA-3:** Minor revision to ATA-2.
- **Ultra-ATA:** Also called Ultra-DMA, ATA-33, and DMA-33, supports multiword DMA mode 3 running at 33 MBps.
- **ATA/66:** A new version of ATA, that will double ATA's throughput to 66 MBps

### ATAPI

Short for **AT Attachment Packet Interface**, an extension to EIDE that enables the interface to support CD-ROM players

## B

### BIOS

Basic I/O system. A set of routines that works closely with the hardware to support the transfer of information between elements of the system, such as memory, disks, and the monitor. Although critical to performance, the BIOS is usually invisible to the end user; however, programmers can access it.

**C****CELLULAR**

Refers to communications systems where a geographic region is divided into sectors, called cells.

**CPU**

CPU (Central Processing Unit) is the heart (computational and control unit) of a computer. This device interprets and executes instructions.

**D****DMA**

The Direct Memory Access is a technique for transferring data from the memory to a device. Data doesn't pass through the CPU.

**DEVICE**

It is any circuit performing a specific function.

**E****ECP**

Extended Capabilities Port. An asynchronous, 8-bit-wide parallel channel defined by IEEE 1284-1944 that provides PC-to-peripheral and peripheral-to-PC data transfers.

**EEPROM**

EEPROM (also known as E<sup>2</sup>PROM) stands for Electronic Erasable Programmable ROM. This type of memory can be re-programmed by electronic signals.

**EPROM**

EPROM stands for Erasable Programmable ROM. This type of memory can only be erased by ultra-violet (UV) light.

**ETHERNET**

It is a type of Local Area Network (LAN) architecture. Ethernet supports data transfer rates of 10Mbps. A newer version of Ethernet, called Fast Ethernet (or 100Base-T), supports data transfer rates of 100 Mbps. And the newest version, Gigabit Ethernet supports data rates of 1 Gbit (1000 megabits) per second.

**F****FDC**

Floppy Disk Controller. A special-purpose chip and associated circuitry that directs and controls reading from and writing to a computer's disk drive.

**FIFO**

First in/first out. A method for processing a queue in which items are removed in the same order in which they were added.

**Flash ROM**

Flash ROM (like EEPROM) can be re-programmed by electronic signals. Usually a Flash ROM has a capacity of 1MB. Into this memory usually resides BIOS and other useful programs or instructions.

**G****GPS**

Global Positioning System is a worldwide satellite navigational system formed by satellites orbiting the earth and their corresponding receivers on the earth.

**GSM**

Global System for Mobile communications, is one of the leading digital cellular systems, and uses narrowband Time Division Multiple Access which allows eight simultaneous calls on the same radio frequency.

**H****HDC**

Hard Disk Controller is a special-purpose chip and circuitry that directs and controls reading from and writing to a computer's disk drive.

**I****IDE**

Integrated Device Electronics is a disk drive interface where the controller electronics reside on the drive itself. This allows elimination of the need for a separate adapter card.

**IEEE**

IEEE stands for Institute of Electrical and Electronics Engineers, pronounced "I-triple-E." Founded in 1963, IEEE is an organization composed of engineers, scientists, and students. IEEE is best known for developing standards for the computer and electronics industry.

**I/O**

I/O (Input/output). Two of the three activities that characterize a computer (input, processing, and output). Refers to the complementary tasks of gathering data for the microprocessor to work with and making the results available to the user through a device such as the display, disk drive, or printer.

**IRQ**

IRQ (Interrupt ReQuest). A method by which a device can request to be serviced by the device's software driver. The system board uses a PIC to monitor the priority of the requests from all devices. When a request occurs, a microprocessor suspends the current operation and gives control to the device driver associated with the interrupt.

**ISA**

ISA (Industry Standard Architecture) is an 8-bit / 16-bit bus that provides a buffered interface from devices on expansion cards to the PC internal bus.

**L****LAN**

LAN (Local Area Network). A group of computers and other devices spanned over a relatively limited area (i.e. a single building).

**LBA**

LBA (Logical Block Address). A unit of data supplied or requested by a host computer.

**M****MIDI**

MIDI (Musical Instrument Digital Interface). An industry-standard connection for computer control of musical instruments and devices. A hardware and data standard for communicating between hardware. Most references involve only the data standard, which is a byte stream used for controlling musical instruments and storing the output of such instruments.

**MPEG**

MPEG (Moving Picture Expert Group). Refers to one of several standard video-compression schemes. A CODEC for squeezing full-screen, VHS-quality digital video into a small data stream so that it can be played from a CD-ROM drive.

**N****NDIS**

NDIS (Network Driver Interface Specification). The interface for network drivers used in Windows and Windows NT operating systems. NDIS provides a common mechanism by which any given NDIS-compatible transport driver can communicate with any NDIS-compatible network adapter driver. Moreover, it provides for multiple transports to work over multiple network adapters by supporting multiplexing between transports and drivers.

**NMI**

NMI (Nonmaskable Interrupt). An interrupt that cannot be overruled by another service request. A hardware interrupt is called nonmaskable if it cannot be masked by the processor interrupt flag.

**NTSC**

NTSC (National Television System Committee) of the Electronics Industries Association (EIA). The standards-setting body for television and video in the United States. Sponsor of the NTSC standard for encoding colour, a coding system compatible with black-and-white signals and the first system used for colour broadcasting in the United States. The broadcast standard for the United States and Japan. *See also* PAL format *and* SECAM.

**O****OEM**

OEM stands for Original Equipment Manufacturer. This acronym is used primarily to refer to PC systems manufacturers.

**P****PCI**

PCI (Peripheral Component Interconnect) is a standard high-performance, 32-bit / 64-bit bus, designed to be used with devices that have high bandwidth requirements.

**PCMCIA**

PCMCIA (Personal Computer Memory Card International Association). Sometimes used to refer to a controller for a type of expansion card documented in the PCMCIA standards.

**PIO**

The Programmed Input/Output is a method of transferring data over the IDE interface. The other way is the Direct Memory Access (DMA)

## R

### RAM

RAM (Random Access Memory). Semiconductor-based memory that can be read-from and written-to by the microprocessor or other hardware devices.

### ROM

ROM stands for Read Only Memory. This memory can only be read-from but not written-to.

## S

### SCSI

SCSI stands for Small Computer System Interface. It is an I/O bus designed as a method for connecting several classes of peripherals to a host system without requiring modifications to generic hardware and software.

### SECAM

SECAM (Sequential Couleur a Memoire; Sequential Colour with Memory). The television standard for France, Russia, and most of Eastern Europe. As with PAL, SECAM is based on a 50-Hz power system, but it uses a different encoding process and displays 819 horizontal lines per frame at a scan rate of 25 frames per second (50 fields per second). See *also* NTSC and PAL format.

### SMBus

SMBus (System Management Bus). A two-wire interface based on the I<sup>2</sup>C protocol. The SMBus is a low-speed bus that provides positive addressing for devices, as well as bus arbitration.

### SSD

SSD stands for Solid State Disk (i.e. Disk on Chip, Disk on Module, Flash ROM,).

In fact this is not a real disk but a silicon support memory without mechanical parts that are in movement.

## TDMA

Time Division Multiple Access is a technology for delivering digital wireless service using time division multiplexing, that is a type of multiplexing combining data streams by assigning each stream a different time slot in a set.

## U

### UART

UART (Universal Asynchronous Receiver/Transmitter), is a module composed of a circuit that contains both the receiving and transmitting circuits required for asynchronous serial communication.

### USB

USB (Universal Serial Bus) is a 4-pin bi-directional, isochronous, dynamically attachable serial peripheral bus that is capable of cascading low/medium speed peripherals (less than 10 Mbit/s)

**V****VGA**

VGA Video graphics array. A video adapter that supports 640 × 480-pixel colour resolution. A video display standard for boot devices under Windows operating systems.

**W****WAN**

WAN stands for a wide-area network and it is a system of LANs (in geographically separated areas) connected together via telephone lines and/or radio waves.

## Acronyms and Abbreviations

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A	Ampere	LCD	Liquid Crystal Display
APM	Advanced Power Management	LPT	Line Printer
ATA	AT Attachment	LVD	Low Voltage Differential
ATAPI	ATA Packet Interface	MB	Megabyte
BIOS	Basic I/O System	Mbps	Megabits per second
DMA	Direct Memory Access	MHZ	Megahertz
DOC	Disk On Chip	NIDS	Network Driver Interface Specification
DOM	Disk On Module	NTSC	National Television System Committee
ECC	Error Correction Code	OEM	Original Equipment Manufacturer
ECP	Enhanced Capabilities Port	PAL	Phase Alternation Line
FDC	Floppy Disk Drive Controller	PCI	Peripheral Component Interconnect
FDD	Floppy Disk Drive	PCMCIA	Personal Computer Memory Card International Association
HDC	Hard Disk Drive controller	PIC	Programmable Interrupt Controller
HDD	Hard Disk Drive	PIO	Programmed I/O
IDE	Integrated Device Electronics	POST	Power-On Self Test
IEEE	Institute for Electrical and Electronics Engineers, Inc.	RAM	Random Access Memory
I/O	Input/Output	RAMDAC	RAM digital-to-analog converter
IP	Internet Protocol	SCSI	Small Computer System Interface
IRQ	Interrupt Request	SMBus	System Management Bus
ISA	Industry Standard Architecture	TCP/IP	Transmission Control Protocol/Internet Protocol
KB	Kilobyte	USB	Universal Serial Bus
Kbps	Kilobits per Second	V	Volt
KHz	Kilohertz	W	Watt
LAN	Local Area Network	WAN	Wide Area Network
LBA	Logical Block Addressing		





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