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AMPRO™ BY ADLINK
Advantages

Ampro by ADLINK™ services and customizations help you build a better product faster

We continue to expand our product lines based on Ampro's heritage as the leading developer of industry standards including PC/104 (founder of the consortium), EBX and EPIC form factors. Ampro has contributed to the success of many manufacturing companies, large and small, by providing highly reliable single board computers (SBCs), computer-on-modules (COMs) and industrial systems.

Most Extreme Rugged™ Products in the Industry

Many commercial board manufacturers claim that they offer "ruggedized" products which give the impression of durability under tough conditions. The term 'ruggedized' however often refers to desktop grade designs which are screened at high temperatures with high yield fallout. Do not be fooled by these claims. Ruggedness should be inherent in the design. Our Extreme Rugged products are subjected to extensive voltage and temperature margin tests during the new product development process along with Highly Accelerated Life Test (HALT) and shock and vibration testing.

Highly Accelerated Life Test

We subject our Extreme Rugged products to HALT during the product development process. This testing is performed at an outside test lab managed by industry experts. This process consists of progressively increased extremes of temperature (both high and low), rapid thermal transition, six-axis vibration, and finally, combined temperature and vibration stress.

Extended Temperature Testing

We offer optional Extended Temperature Testing (ETT) for selected Ampro by ADLINK products. By testing each unit in production, we verify that all boards will operate and function at temperatures up to –40° to +85°C. For specific board information, please refer to datasheet.

Configuration Control

Strict change control and 60 day advance notification of changes sets us apart from other suppliers. We give you the opportunity to understand changes to Ampro by ADLINK products before they are rolled into production.

Conformal Coating Protects Your Computers in the Harshest Conditions

Optional conformal coating is a protective material applied over electronic circuitry and can prevent short circuits, corrosion, dendritic growth and electromigration of metals between conductors. Conformal coating from ADLINK is applied by spraying, clipping or flow coating the circuit board assembly.

Embedded BIOS

Rather than simply using desktop BIOS, ADLINK adds BIOS extensions that support the development and deployment of embedded systems. Additionally, ADLINK has a proven track record of offering BIOS customizations to meet unique requirements giving our customers a competitive advantage.

Embedded OS Support

ADLINK invests significantly in integrating drivers and developing, testing, documenting and supporting BSPs for more operating systems than any other supplier in today's marketplace. We work with both small and large operating systems. Please check our Web site for the most up-to-date OS version information for a particular product.

Worldwide Development Centers and Manufacturing

ADLINK now has design-for-ruggedness and design-for-cost engineering departments, fortified by world class PCB assembly and system-level integration. Our thorough supply chain management program helps ADLINK deliver high quality products that adhere to the company's strict development and production quality standards including ISO 9001:2000.

Extending the Life of Our Products

ADLINK designs products with attention to long product lifetimes by providing comprehensive lifecycle support and management assistance to customers. When changes are necessary, we provide advance notification and guidance through the transition. And our dedication to industry standards provides new products and product roadmaps that enable smooth resolution to end-of-life (EOL) migration issues.

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3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

ADLINK TECHNOLOGY INC

AMPRO™
BY ADLINK
Industry Applications

Extreme Rugged™ and Rugged grade embedded solutions for a variety of markets
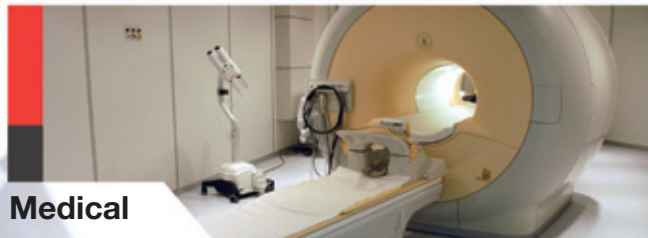
Medical

In the medical industry, time is of the essence and nothing less than perfection is acceptable. Ampro by ADLINK™ embedded computer boards and systems are utilized in a variety of medical applications and delicate procedures. Our products adhere to the strictest of medical standards and provide unsurpassed reliability.

Military

At the frontline or back home training, Ampro by ADLINK™ Extreme Rugged™ boards withstand intensities of military environments. With the ability to endure temperatures of -40°C to +85°C, our boards are able to perform precisely in harsh conditions experienced all over the world. For specific board information, please refer to datasheet.

Industrial

ADLINK's broad range of form factors provide scalability in performance, connectivity, size and energy requirements along with modular flexibility, longevity and ruggedness to ensure our products meet the needs of your company. With designs based upon open standards, ADLINK boards and systems are easy to maintain and upgrade.

Homeland Security

Homeland security has never been more important and extensive. With millions of people passing through security checkpoints every day, the large gathering of people creates a natural target for terrorism and other forms of crime.

Aviation

On board many of the aircraft that take to the skies everyday, Ampro by ADLINK™ single board computers (SBCs) and computer-on-modules (COMs) easily perform under the extreme conditions of fight. Able to withstand a temperature range of –40° to +85°C, our Extreme Rugged™ boards operates in the temperatures experienced at high altitudes. For specific board information, please refer to datasheet.

Entertainment

It does not matter if your audience is one or one million, you want to ensure its members enjoy themselves and are provided with the best quality performance. Used in a variety of sports and entertainment venues, ADLINK's boards complete the assigned tasks quickly and efficiently.

Transportation

Moving people and goods from one place to another is a critical part of every society. One mistake can cause a ripple effect through an entire economy. In both public and private transportation, Ampro by ADLINK™ boards provide rugged quality and comprehensive data processing.

Test and Measurement

Companies expose their products to a gauntlet of tests to reduce the flaws of the end products, and ADLINK is right there aiding in the test and measurement processes. Able to withstand the 24 hours a day, 7 days a week mass production environment, our SBCs and COMs provide unparalleled reliability and quality.

ADLINK TECHNOLOGY INC

True Ruggedness by Design

• vs. just ruggedized

Many commercial board manufacturers claim that they offer "ruggedized" products which gives the impression of durability and reliability under tough conditions. The term "ruggedized," however, often refers to desktop-grade designs which are screened at high temperatures with high yield fallout.

ADLINK believes that ruggedness should be inherent in the design. Ampro by ADLINK™ products are subjected to extensive voltage and temperature margin tests along with shock and vibration testing and HALT testing during the new product development process.

ADLINK HALT Test Program

In order to maximize product reliability and durability, ADLINK subjects Ampro by ADLINK™ products to a comprehensive Highly Accelerated Life Test (HALT) program during the product development process.

The HALT process consists of progressively increased extremes of temperatures (both high and low), rapid thermal transitions, six-axis vibration, and finally, combined temperature and vibration stress. At each stress dwell extreme, power to the unit is margined at ±5 percent. During each test, stress is progressively increased while the unit is operating in a continuous functional test loop that exercises key subsystems such as the CPU, I/O ports, disk controllers and video. If a failure is detected, the failure is evaluated and immediate fixes are made and the test is continues until destruct limits are reached. Failures and the physical damage found at the destruct limits provide data which is used to improve the ruggedness of the product design.

Random Vibration

Ampro by ADLINK™ products are vibration-tested in accordance with the specifications of MIL-STD-202F, Method 214A, Table 214-1, Condition D for Random Vibration for five minutes on each axis. This equates to a RMS value of 11.95G of random vibration between 100Hz and 1000Hz along each axis. The units under test are operational during the tests, performing functional diagnostics on all hardware subsystems. The test routine runs continuously to verify functionality of the system and catch any intermittent failures. External peripherals (Ethernet Server, hard drive, etc.) are mounted adjacent to the vibration table and are not subjected to the test conditions.

Mechanical Shock

Mechanical Shock testing is performed on Ampro by ADLINK™ products per MIL-STD-202F, Method 213B, Table 213-1, Condition A. This specifies three 50G shocks (peak value, 11ms duration, half-sine waveform) along each of the three axes. The unit under test is mounted on a shock machine and subjected to shock pulses of 50g-peak value, 11 ms duration with half-sine waveforms. Three shocks in each direction, for a total of 18 shocks, are applied along the three mutually perpendicular axes. After shocks in two directions (+ and –) along each axis, the products are tested for functionality.

Voltage and Temperature Margin Test Suite

During the margin test suite, the Unit Under Test (UUT) is subjected to temperatures well outside the "Extended" (–40° to +85°C) operating temperature range offered for Ampro by ADLINK™ products. The UUT is simultaneously subjected to minimum and maximum rated voltages (±5%). This process verifies that Ampro by ADLINK™ products are functional and stable over combined extremes of both temperature and voltage. In also ensures wide design margins resulting in long-term reliability under all specified operating conditions.

Extended Temperature Testing of Boards

• Your assurance that Ampro by ADLINK™ products will function in extreme temperatures

ADLINK provides optional Extended Temperature Testing to our customers for Ampro by ADLINK™ products. By testing each unit in production, the Extended Temperature Test verifies that all boards will operate at temperatures from –40° to +85°C or other ranges. ADLINK uses a leading-edge custom-designed modular card cage system in a state-of-the-art environmental chamber to test Ampro by ADLINK™ products over the entire extended temperature range. This leading edge design is fully automated and utilizes custom-designed test software.

100% ADLINK Quality

Each Ampro by ADLINK™ product is fully functionally tested during the entire range of extended temperature operation. Using the custom-designed application user interface, the board's test results are scanned into a database.

This data is used for internal quality assurance audits. Customers who require this level of detail may request summarized test results.

All boards are ramped to the specific temperature profile and soaked before power is applied. This ensures that the BIOS properly initializes all hardware and the boards are ready for diagnostic testing. This process distinguishes ADLINK from other companies that rely on a single power cycle while testing at extended temperatures. ADLINK identifies each board that passes testing with a label that indicates the boards fulfill ADLINK's stringent quality standards.

Extended Temperature Testing verifies that all boards will operate and function at temperatures from –40° to +85°C or other ranges.

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10 Ampro by ADLINK Extreme Rugged

Conformal Coating Protects Your Computers in the Harshest Conditions

• Prevent short circuits, corrosion, dendritic growth and electromigration

Embedded single board computers are often deployed in harsh environments. Industrial, military, naval and airborne applications often expose boards to corrosive conditions including humidity, salt spray, fungus and other contaminants. Conformal coating, a protective material applied over electronic circuitry, can prevent short circuits, corrosion, dendritic growth and electromigration of metals between conductors.

Conformal coating from ADLINK is applied by spraying, dipping or flow coating the circuit board assembly. This coating is typically three mils (0.003") thick. ADLINK generally uses HumiSeal 1B31 Acrylic coating, although epoxy, urethane, paraxylylene and silicone based coatings are also available upon request. Acrylic coatings are fast drying and offer high moisture resistance, excellent flexibility and superior dielectric properties.

The coating is also easy to repair, making them extremely useful in a wide variety of high performance situations. HumiSeal 1B31 contains a UV safety tracer for ease of inspection under a blacklight.

Enhanced Reliability for Over 20 Years.
Based on Ampro's proven heritage, ADLINK's conformal coating process has provided enhanced reliability and corrosion protection for over 20 years.

7-Step Conformal Coating Process

1   Preparation

Separable parts are removed and cleaned.

2   Surface Treatment

Low frequency plasma gas is used to etch the solder mask and improve adhesion.

3   Masking

All interface mating surfaces, mounting holes, fans and heatsinks are masked based on ADLINK's detailed specifications.

4   Spray Coating

Using state-of-the-art spray guns and booths, boards and thickness coupons are coated.

5   Curing

Boards are cured per manufacturers' specifications. Some cures are thermal, with temperatures not to exceed 150°F (65°C).

6   Inspection

Coating thickness is verified on the coupons and board coverage is verified using a blacklight.

7   Test

Previously removed parts are re-installed and the boards are fully tested.

Lifecycle Solutions^{SM} for Ampro by ADLINK™ Products

• Extend the life of your systems

For over 20 years, Ampro contributed to the success of many companies, large and small, by designing products with attention to long product lifetimes and by providing comprehensive lifecycle support and management assistance to customers. To support your ongoing production needs, the Lifecycle Solutions^{SM} program has been created for Ampro by ADLINK™ products.

From component selection to strategic partnerships to component lifecycle management, ADLINK goes the extra mile to ensure that standard, semi-custom and custom boards can be produced with no more than minor changes for years to come. When changes are necessary, ADLINK provides advance notification and guidance through the transition to new hardware or BIOS extensions. And our dedication to industry standards enables us to provide new products and product roadmaps that enable smooth resolution of end-of-life (EOL) migration issues.

Derive Greater Value from Your Systems

ADLINK understands that assembling, supporting and servicing a system for five to ten years or more can be challenging when building blocks are typically in production for only several years. Whether or not government approvals or field trials are involved, product redesigns are time consuming and expensive. The Lifecycle Solutions^{SM} program for Ampro by ADLINK™ products offers numerous long-term benefits, including:

- ADLINK strives for a 7-year lifecycle for standard and semi-custom boards and systems. Many Ampro by ADLINK™ products have remained in production for longer.

- During that period, ADLINK builds boards with the same components so that you do not have to worry about new components with each board shipment.
- For Ampro by ADLINK™ products, ADLINK provides 60-day written notice of necessary changes that affect form, fit or function of the board.
- For End of Life (EOL) Ampro by ADLINK™ products, ADLINK gives you as much notice as possible to place orders and up to one full year to receive shipments.
- ADLINK secures long-term commitments from component suppliers before components are designed in, and works closely with manufacturers and distributors to ensure long-term availability.
- When suppliers notify us about upcoming component obsolescence, we determine migration alternatives and work with you early on rather than delaying notification that can result in higher costs and inconvenience to you.
- For Ampro by ADLINK™ products, ADLINK develops new products with the same form factors, mounting holes, connector locations and bus interfaces to simplify migration issues when EOL becomes necessary.

Long Live Your Next Project

The Lifecycle Solutions^{SM} program for Ampro by ADLINK™ products takes the pain out of manufacturing and servicing embedded systems for extended lifecycles. For over 20 years, Ampro helped large and small system OEMs succeed. From now on, ADLINK will continue helping you to build a better product and keep it in production longer.

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Ampro by ADLINK™ Methodology

• Ampro by ADLINK™ Product Classifications

Extreme Rugged™
Our Extreme Rugged boards and systems are designed for harsh environments from the ground up. To support the extremes of shock, vibration, humidity, and temperature, care is given to component selection, circuit design, PCB layout and materials, thermal solutions, enclosure design, and manufacturing process. Robust test methods, including Highly Accelerated Life Testing (HALT), ensure optimal product design phases and meet stringent requirements such as -40℃ to +85℃ operating temperature range[1], MIL-STD, shock & vibration, and long-term reliability.

Rugged
Our Rugged products achieve a middle ground between industrial and Extreme Rugged applications that experience less shock and vibration and operate within a -20℃ to +70℃ temperature range. PC-style connectors are used to simplify cabling because shock and vibration are minimal. Thermal solutions and other system components are designed for indoor and light outdoor environments.

• Ampro by ADLINK™ Product Lines

Ampro by ADLINK products include the most rugged computer-on-module (COM) offerings in the industry, Single Board Computers (SBC) in popular compact form factors for embedded applications, and rugged systems with field-proven reliability, durability, and performance.
The following table summarizes Ampro by ADLINK's product lines, form factors, and supported standards.

	Product Line	Form Factor	Features/Specification
Computer-on-Modules	COM	COM Express™ (125 x 95 mm - Basic) (95 x 95 mm - Compact)	PICMG COM.0 R1.0
	ETX	ETX® (114 x 95 mm)	ETX® Specification Rev. 3.0
Single Board Computers	LittleBoard™	EBX™ (203 x 146 mm)	PC/104 expansion[2]
	ReadyBoard™	EPIC™ (165 × 115 mm)	PC/104 expansion[2]
	CoreModule®	PC/104 – ISM™ (90 × 96 mm)	PC/104 expansion* SUMIT™ expansion
Systems	RuffSystem™	Conduction-cooled Sealed Enclosure	Extreme Rugged™ computer system w/ PC-style connectors
	MilSystem™	Conduction-cooled Sealed Enclosure	Extreme Rugged™ military computer w/ MIL-STD connectors

(1) Some board-level products are limited to -40˚C to +80˚C operating temperature range due to CPU constraints. Extreme Rugged™ systems have an operating temperature range of -40˚C to +75˚C.
(2) SBCs with PC/104 expansion capability may support PC/104 (ISA), PCI-104 (PCI) or PC/104-*Plus* (ISA + PCI) connectors, depending on the specific model.

Computer-on-Module
COM Express™; ETX®
• 125 x 95 mm; 114 x 95 mm; 95 x 95 mm

CoreModule®
ISM
• 90 x 96 mm

LittleBoard™
EBX
• 203 x 146 mm

ReadyBoard™
EPIC
• 165 x 115 mm
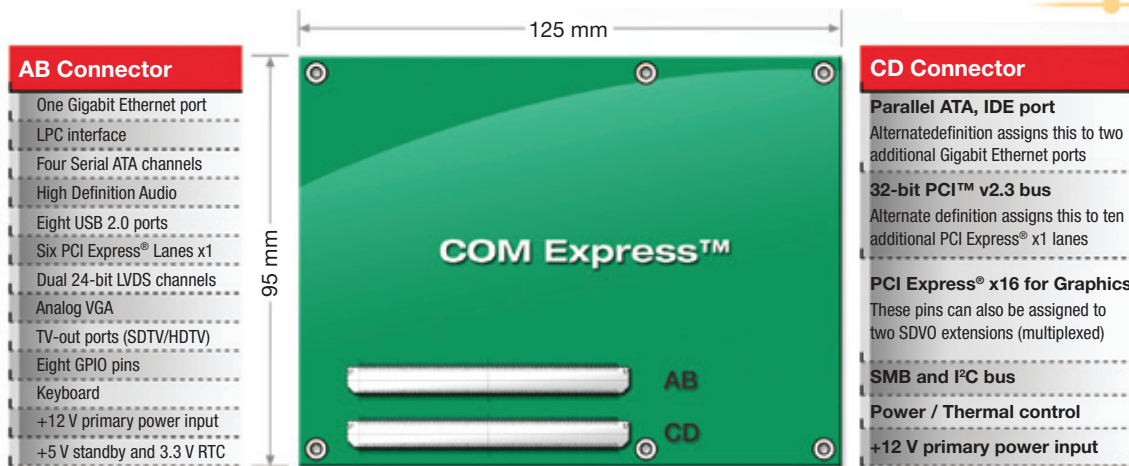
RuffSystem™

MilSystem™

Computer-on-Modules General Overview

Ampro by ADLINK™ products include the most rugged computer-on-module (COM) offerings in the industry, featuring the most popular form factors and designed to provide fast time-to-market. Our ETX® modules are available for Extreme Rugged™ applications, with an array of features all the while providing the ability to upgrade your core system without a complete redesign. Based on the PICMG® COM Express™ specification, ADLINK's COM Express™ modules feature the latest technology in CPUs and chipsets, providing Extreme Rugged™ computer-on-module solutions for applications in harsh environments.
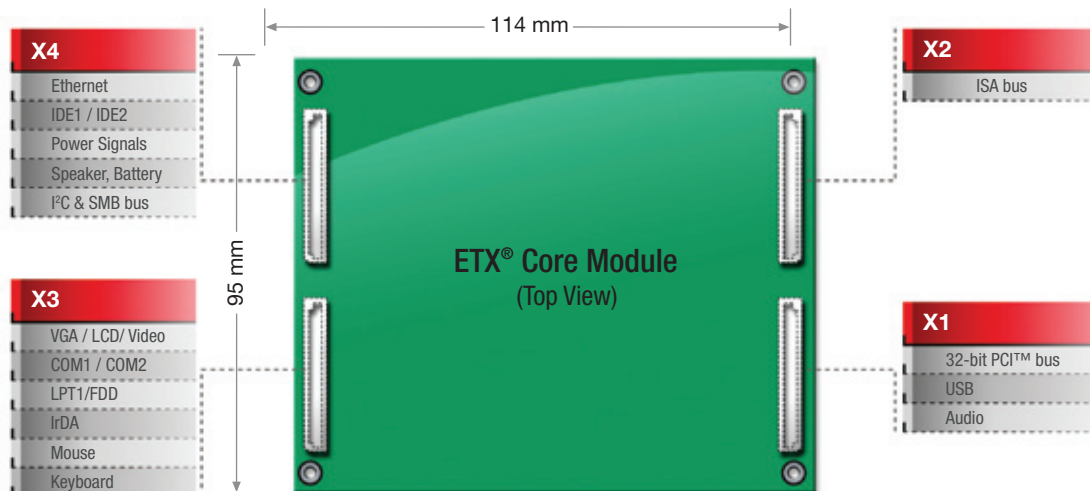
COM Express™

COM Express™ offers the modular architecture for the latest and next generation technologies, giving OEMs the flexibility to optimally design systems based on current and future applications. It is suited for high-end graphics applications, military computers, high speed communications and other applications. ADLINK offers the COM Express™ form factor in an Extreme Rugged™ version with Type II pinout.

COM

AB Connector
One Gigabit Ethernet port
LPC interface
Four Serial ATA channels
High Definition Audio
Eight USB 2.0 ports
Six PCI Express® Lanes x1
Dual 24-bit LVDS channels
Analog VGA
TV-out ports (SDTV/HDTV)
Eight GPIO pins
Keyboard
+12 V primary power input
+5 V standby and 3.3 V RTC

125 mm
95 mm

COM Express™
AB
CD

CD Connector
Parallel ATA, IDE port   Alternatedefinition assigns this to two additional Gigabit Ethernet ports
32-bit PCI™ v2.3 bus   Alternate definition assigns this to ten additional PCI Express® x1 lanes
PCI Express® x16 for Graphics   These pins can also be assigned to two SDVO extensions (multiplexed)
SMB and I²C bus
Power / Thermal control
+12 V primary power input

Above connector assignments comply with PICMG® COM.0
COM Express™ Module, Basic Form Factor

ETX®

Ampro by ADLINK™ ETX® products are designed for Extreme Rugged™ applications. Our ETX® COMs enable short time-to-market and with future upgradeability. Ampro by ADLINK™ Extreme Rugged™ modules are designed specifically for harsh environments and placed through a series of tests including the Highly Accelerated Life Test (HALT) and MIL-STD-202F for shock and vibration.

ETX

114 mm
95 mm

X4
Ethernet
IDE1 / IDE2
Power Signals
Speaker, Battery
I²C & SMB bus

X2
ISA bus

ETX® Core Module
(Top View)

X3
VGA / LCD/ Video
COM1 / COM2
LPT1/FDD
IrDA
Mouse
Keyboard

X1
32-bit PCI™ bus
USB
Audio

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Ampro by ADLINK™ Computer-on-Modules

Selection Guide

	COM Express™			ETX®
	Express-CBR	**Express-ATR**	**COM 840**	**ETX 802**
CPU	2.0GHz Core™ i7	1.6GHz Atom™	1.6GHz Core™2 Duo 1.06GHz Core™2 Duo	1.4GHz Pentium® M 1.0GHz Celeron® M 800MHz Celeron® M
L2 Cache	4MB	512KB	4MB / 1MB	2MB / 512KB / 0KB
DRAM	Up to 8GB DDR3	Up to 2GB DDR2	Up to 4GB DDR2	Up to 1GB DDR
PATA	Yes	Yes	Yes	Yes
SATA	4	2	2	N/A
Solid State Disk	N/A	Yes (up to 8GB)	N/A	N/A
PCI Express	6 PCI Express x1 1 PCI Express x8	3 PCI Express x1	5 PCI Express x1 1 PCI Express x16	N/A
ISA	N/A	N/A	N/A	Yes
PCI	Yes	Yes	Yes	Yes
USB	8	8	8	4
LPC	Yes	Yes	Yes	N/A
SMBus	Yes	Yes	Yes	Yes
I²C	Yes	Yes	N/A	Yes
GPIO	8	8	8	N/A
TPM	Yes	Yes	N/A	N/A
Flat Panel	Dual Channel 24-bit LVDS	Single Channel 18-bit LVDS	Dual Channel 24-bit LVDS	Dual Channel 24-bit LVDS
Graphics	SDVO, PCIe x8, eDP, Analog VGA, TV-Out	SDVO, Analog VGA, TV-Out	PCIe x16, SDVO, Analog VGA, TV-Out	Analog VGA
Audio	HD Audio	HD Audio	HD Audio	AC'97 Audio
Network	Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet	10/100 BaseT
Operating Temperature	-20°C to +70°C (std.) -40°C to +85°C (opt.)	-20°C to +70°C (std.) -40°C to +80°C (opt.)	-20°C to +70°C (std.) -40°C to +85°C (opt.)	-20°C to +70°C (std.) -40°C to +85°C (opt.)
Dimensions	125mm x 95mm	95mm x 95mm	125mm x 95mm	114mm x 95mm
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Express-CBR

COM Express™ Module with Intel® Core™ i7 Processor and QM57 Chipset

Features

- Intel® Core™ i7 Processor
- Dual Channel DDR3 SODIMM up to 8GB
- Onboard Gigabit Ethernet
- Embedded Display Port (eDP) or PCI Express x8
- Dual Channel 24-bit LVDS, VGA, TV-Out and SDVO

Choose the Ampro by ADLINK™ Express-CBR for…

Modular, ultra high performance applications that require a low power platform for harsh environments.

Description

The Ampro by ADLINK™ Express-CBR leverages the Intel® Core™ i7 processor for ultra high performance and the Intel® 82574IT GbE Controller for wide range temperature applications. USB 2.0, SATA and PICMG® COM Express™ COM.0 compliance. Also featured are Intel® Turbo Boost, Hyper-Threading Technology, USB 2.0, SATA and PICMG® COM Express™ COM.0 compliance.

Specifications

Core System

CPU – Intel® Core™ i7 Dual Core Processor
  – 4MB L2 cache
  – Integrated graphics processor and memory controller
DRAM – Up to 8GB Dual Channel DDR3 800/1066 SODIMM
Chipset – Intel® QM57 Express Chipset
BIOS – AMI with CMOS backup in 16 Mbit SPI BIOS

Bus Interface

Six PCI Express x1, 32-bit PCI at 33MHz, LPC, SMBus, I²C, PCI Express x8 (multiplexed w/ eDP)

I/O

IDE – Single channel IDE (SATA to IDE conversion)
SATA – Four channels
USB – Eight USB 2.0 ports
Audio – High Definition Audio
GPIO - Eight general-purpose digital I/O pins

TPM

Chipset – Infineon SLB9635TT1.2
Type – TPM 1.2

Network Interface

Ethernet - Intel® 82574IT Gigabit Ethernet Controller

Video Interface

Dual Channel 24-bit LVDS
Analog VGA, TV-Out
SDVO
Embedded Display Port (eDP) (multiplexed w/ PCI Express x8)

Software & Development Tools

OS Support – Linux / Windows® CE 6.0 / XPe / VxWork 6.6 / QNX 6.4*
BIOS – AMI with ACPI 2.0
*Note: Available upon request. Contact us for additional software support.

Power Specifications

Input Power – 9-16 V wide range input support, with optional 5Vsb for ATX power supply
Power States – Supports S0, S1, S3, S4, S5

Mechanical

Size – COM Express™ basic form factor 125mm x 95mm with Type II pin out
Board Thickness – .093" (2.36mm thick)
Temperature
  • Standard: –20°C to +70°C
  • Extended: -40°C to +85°C
  • Storage: -55°C to +85°C
Humidity – 90% at 60°C
Shock
  • Non-operation: 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B
Vibration
  • Operation: 11.95 Grms, 50-2000 Hz, each axis, MIL-STD-202G Method 214A

Ordering Information

Model Number	Description/Configuration
Express-CBR-R-20	Express-CBR, Intel® Core™ i7-620LE, 2.0GHz, Dual Core, no RAM
Express-CBRE-L-20	Quick Start Kit (Express-CBR-R-20, 2.0GHz, 2GB RAM, cable kit, software, thermal module, Extreme Rugged EBX baseboard, documentation)
Express-CBR-L-20	Quick Start Kit (Express-CBR-R-20, 2.0GHz, 2GB RAM, cable kit, software, thermal module, Express-Base ATX baseboard, documentation)

Note: Available upon request. Contact us for additional processors support.

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Express-ATR

Ampro by ADLINK™ Extreme Rugged™

10

Features

- Up to 2GB DDR2 memory
- True PICMG COM Express™ COM.0 compliance
- PCI Express, SATA II
- Single Channel 18-bit LVDS, VGA, TV-Out and SDVO
- 50% thicker PCB

Choose the Ampro by ADLINK™ Express-ATR for …

Modular, feature-rich applications that require integrated graphics, wide temperature range operation, and shock and vibration resistance.

Description

The Ampro by ADLINK™ Express-ATR is a compact, high performance module featuring the Intel® Atom™ processor with Gigabit Ethernet and high performance I/O.

Specifications

Core System

CPU – Intel® Atom™ Processor N270 at 1.6GHz
    – 512KB L2 cache
DRAM – Up to 2GB DDR2 533 SODIMM
Chipset – Intel® 945GSE/ICH7-M
FSB - 533MHz
System Controller - PC-compatible DMA and interrupt controllers and timers
Powerfail Reset - Triggers when key voltage drops below predetermined threshold

Bus Interface

3 PCI Express x1 lanes, PCI, and LPC

I/O

PATA - 1 channel IDE, supports optional SSD up to 8GB
SATA - 2 channels
USB - 8 USB 2.0 ports
Audio - High Definition Audio per COM.0 standard
GPIO - Eight general-purpose digital I/O pins

Network Interface

Ethernet: Intel® 82574 IT Gigabit Ethernet controller on PCIe x1

Video Interface

Intel® GMA 950
3D and 2D engine, HW rotation
Dual panel display with independent pipes, HDTV support, SDVO
CRT resolution up to QXGA
Single Channel 18-bit LVDS

Software & Development Tools

OS Support – ADLINUX™, Embedded Linux®, Windows® CE 6.0, XP, XPe, VxWorks® 6.6, QNX® 6.4
BIOS – AMI with ACPI 2.0 including S0, S1, S3, S4, S5

Power Specifications

Input Power - AT mode (12 V) and ATX mode (12 V and 5 Vsb)
Power States - Supports S0, S1, S3, S4, S5
Power Consumption - 9 W typical (with Atom® N270 and 1 GB memory)

Mechanical and Environmental

Size - 95x95mm (3.7x3.7"); COM Express™ Type 2, compact form factor
Board Thickness – .093" (2.36mm)
Temperature (with adequate thermal solution and air flow)
• Standard: –20°C to +70°C
• Extended: –40°C to +80°C
• Storage: –55°C to +85°C
Humidity - Up to 90% at 60°C
Shock
• Non-operation: 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B
Vibration
• Operation: 11.95 Grms, 50-2000 Hz, each axis, MIL-STD-202G Method 214A
Certifications - CE, FCC

Ordering Information

Model Number	Description/Configuration
Express-ATR-R-16	Express-ATR 1.6 GHz Intel® Atom™ N270 CPU, 512kB L2 Cache, PCI Express, PCI, LPC, SSD
Express-ATR-R-15	Express-ATR 1.6 GHz Intel® Atom™ N270 CPU, 512kB L2 Cache, PCI Express, PCI, LPC, without SSD
Express-ATRE-L-16	Express-ATR-R-16 QuickStart Kit (Express-ATR, 1GB DDR2 RAM, EBX Baseboard, heat spreader for Extreme Rugged Extended Temperature installed, documentation, software, ATX power supply)

COM 840

Features

- Up to 4GB DDR2 memory
- True PICMG COM Express™ COM.0 compliance
- PCI Express, SATA II
- ACPI 2.0 with S3 support
- PCI Express x16 graphics (on baseboard)
- 50% thicker PCB

Choose the Ampro by ADLINK™ COM 840 for …

Modular, ultra high performance applications that require high end graphics.

Description

The Ampro by ADLINK™ COM 840 is an ultra high performance module featuring the Intel® Core™2 Duo processor with Gigabit Ethernet and high end chipset graphics or PCI Express x16 graphics on the baseboard.

Specifications

Core System

Choice of
- 1.6GHz Core™2 Duo L7500
- 1.06GHz ULV Core™2 Duo U7500
Cache – 4MB, 1MB Level 2
DRAM – Up to 4GB DDR2 667 SODIMM
Chipset – Intel® GME965/ICH8-M
FSB – 800MHz
System Controllers – PC-compatible DMA and interrupt controllers and timers
Watchdog Timer

Bus Interface

PCIe x16, 5 PCIe x1 PCI and LPC

I/O

PATA – Single Ultra DMA 66/100 IDE interface, supports up to two hard drives
SATA II – 2 ports
USB – 8 USB 2.0 ports
Audio – High Definition Audio
GPIO - Eight general-purpose digital I/O pins

Network Interface

Ethernet - One Intel® 82566 Gigabit port

Video Interface

Intel® GMA X3100, 384MB (DVMT 4.0)
3D and 2D engine, HW rotation
Intel® Clear Video Technology: MPEG-2 HW acceleration and decoding
WMV9 HW acceleration, sharpness enhancement, film mode detection
Dual panel display with independent pipes, HD TV support, supports PCIe x16 and SDVO graphics
CRT resolution up to 2048 x 1536 @ 60Hz

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, Windows® CE 6.0, 5.0, XP, XPe, VxWorks® 6.6
BIOS – AMI with ACPI 2.0 including S3

Mechanical

Size – 125x95mm (4.9x3.7"); COM Express™ basic form factor, Type II pinout
Power Requirements (with 2GB RAM, 100% Loaded)
-1.6GHz 1.8A @ 12V
-1.06GHz 0.8A @ 12V
Temperature (with adequate thermal solution and air flow)
  • Standard: –20°C to +70°C
  • Extended: –40°C to +85°C
  • Storage: –55°C to +85°C
Board Thickness – .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
COM-840-R-32	COM 840, 1.6GHz Core™2 Duo CPU, 4MB L2 Cache, PCI Express, PCI, LPC
COM-840-R-12	COM 840, 1.06GHz ULV Core™2 Duo CPU, 4MB L2 Cache, PCI Express, PCI, LPC, 2 SODIMM sockets
COM-840-R-11	COM 840, 1.06GHz ULV Core™2 Duo CPU, 4MB L2 Cache, PCI Express, PCI, LPC, 1 SODIMM socket
COM-840-L-32	1.6GHz QuickStart Kit (R-32 Module, 2GB RAM, software, documentation, COM Express Baseboard, heatsink w/ fan)
COM-840E-L-32	1.6GHz QuickStart Kit (R-32 Module, 2GB RAM, software, documentation, EBX Baseboard, heatsink w/ fan)
COM-840E-L-12	1.06GHz QuickStart Kit (R-12 Module, 2GB RAM, software, documentation, EBX Baseboard, heatsink w/ fan)

EBX Baseboard

EBX Carrier Board
for COM Express™ Type II Module

Features

- COM Express™ carrier board for Ampro by ADLINK™ Type II COM Express™ modules
- EBX form factor for compact designs
- 2 SATA, 1 PCIe x1, Mini PCI, PCIe Mini Card
- Dual independent LVDS, DVI
- IEEE 1394
- HD Audio 7.1 channels
- Legacy Super I/O

Specifications

Form Factor

EBX 5.75x8"
Supports COM Express™ Basic Type II

Bus Interface

PCI Express x1

Expansion

CompactFlash Socket
PCI Express Mini Card Socket
Mini PCI Socket

I/O

PATA – One EIDE device with Ultra DMA 100/66/33
SATA – 2 ports
PC-style connectors:
– IEEE 1394 single port
– 2 SATA
– 2 Gigabit Ethernet with PXE
On pin header
– 8 USB 2.0 - 1 dedicated to Mini PCIe
– Serial – 4 ports: 2 RS-232, 2 RS-232/422/485
– Parallel Port
– 1 IDE supports 2 devices
Keyboard/Mouse – PS/2 interface
Audio – High Definition 7.1 channels

Network Interface

Ethernet - Dual GbE : one from the module and one Intel® 82572EI on PCIe x1 lane; dual RJ-45 connectors with two LED indicators

Video Interface

Supports VGA, dual LVDS interfaces with dual display capability, SDVO-DVI, TV-out (composite, S-Video, component)

Other features

System front panel connector
–System speaker, HDD LED, Pwr LED, Reset
3 Fan Headers (CPU, NB & System)
ACPI w/S3 support
SMBus support

Software & Development Tools

BIOS – AMI (on COM Express™ module)

Mechanical

Size – 203x146mm (8x5.75"); EBX form factor
Power Requirements – ATX power supply
Environmental
–Temperature
  • Standard: –20° to +70°C
  • Extended: –40° to +85°C
  • Storage: –40° to +85°C
Board Thickness – .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
COM-EBX-R-00	EBX form factor board for COM Express™ Type II module

Supported COM Express™ Modules

Model Number	Description/Configuration
COM 840	COM Express™ Module with Intel® Core™2 Duo Processor and GME965 chipset
Express-CBR	COM Express™ Module with Intel® Core™ i7 Processor and QM57 Chipset
Express-ATR	COM Express™ Module with Intel® Atom™ Processor N270 and 945GSE / ICH7-M Chipset
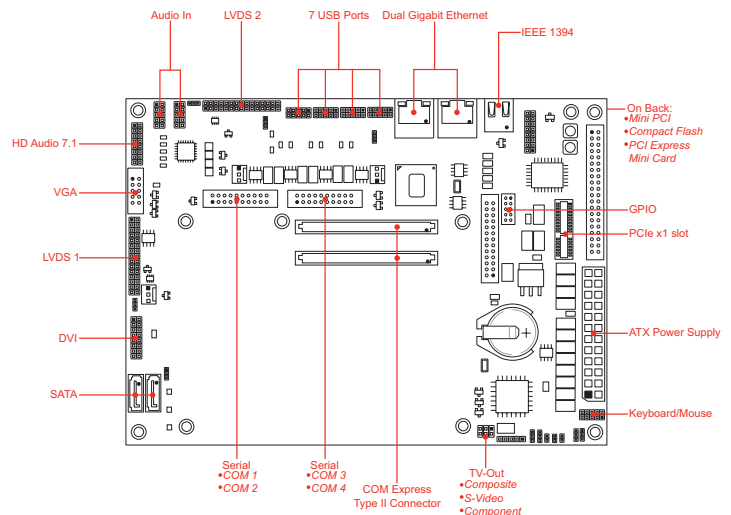
ETX® 802

Features

- Up to 1GB DDR memory, ECC support
- On-board ISA bridge and legacy I/O
- 50% thicker PCB
- ACPI 2.0 with S3 support
- Industry's lowest ETX® S3 current draw

EXTREME RUGGED

Choose the Ampro by ADLINK™ ETX® 802 for…

Modular, high performance applications that require a 5 volt supply, legacy I/O, and full notebook-style power management.

Description

The Ampro by ADLINK™ ETX® 802 is a high-performance, low-power Centrino® processor module with advanced networking and high-performance graphics in a modular format that plugs into your custom baseboard.

Specifications

Core System

Choice of
– 1.4GHz LV Pentium® M 738
– 1.0GHz ULV Celeron® M 373
– 800MHz ULV Celeron® M

Cache – 2MB, 512KB or 0KB Level 2

DRAM – Up to 1GB PC2700 DDR333 SODIMM, ECC or non-ECC

Chipset – Intel® 855GME/ICH4

FSB – 400MHz

System Controllers – PC-compatible DMA and interrupt controllers and timers

Watchdog Timer

Powerfail Reset –Triggers when input voltage drops below predetermined threshold

Bus Interface

ISA and PCI

I/O

PATA Ultra DMA 33/66/100 IDE interfaces, supports up to two hard drives

Serial – 2 ports, TTL, transceivers on baseboard

Parallel – EPP/ECP bidirectional port

Floppy – Supports 1 or 2 drives, shared with parallel

USB – 4 USB 2.0 ports (four root hubs)

Keyboard/Mouse – PS/2 interface

Audio – AC'97 ALC202A audio codec

Network Interface

Ethernet – Intel® 82551QM (10/100 BaseT) Ethernet with Wake-on-LAN

Video Interface

Controller – Integrated Intel® Extreme Graphics 2
– AGP 128-bit 3D engine
– Supports resolutions to 2048x1536
– Up to 64MB UMA Frame Buffer
– Dual channel LVDS flat panel support

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, VxWorks® v5.5.1, QNX® v6.3, Windows® CE 5.0, XP, XPe

BIOS – AMI with ACPI 2.0 including S3

Mechanical

Size – 114x95mm (4.5x3.7"); ETX® form factor

Power Requirements (with 128MB RAM, 100% Loaded)
– 1.4GHz   3.3A @ 5V
– 1.0GHz   2.8A @ 5V
– 800MHz   2.7A @ 5V

Temperature (100 LFM system air flow)*
  • Standard: –20° to +70°C
  • Extended: –40° to +85°C
  • Storage: –55° to +85°C

Board Thickness – .093" (2.36mm)

* As measured with Ampro by ADLINK™ Heatsink Kit and 100 LFM or adequate thermal solution

Ordering Information

| Model Number	Description/Configuration
ET1-802-R-08	ETX® 802, 800MHz ULV Celeron® M CPU, 0KB L2 Cache, ISA, PCI, ACPI
ET1-802-R-12	ETX® 802, 1.0GHz ULV Celeron® M CPU, 512KB L2 Cache, ISA, PCI, ACPI
ET1-802-R-22	ETX® 802, 1.4GHz LV Pentium® M CPU, 2MB L2 Cache, ISA, PCI, ACPI
ET1-802-L-22	1.4GHz QuickStart Kit (R-22 Module, 512MB RAM, software, documentation, Ampro by ADLINK™ AC Baseboard)

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3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

Single Board Computers

After merging with Ampro, ADLINK is the leading developer of industry standards for the most widely used off-the-shelf embedded system boards, such as PC/104, EBX and EPIC. We offer a form factor for every need: the ReadyBoard™ (EPIC) family of products is designed for high-volume commercial applications, and the LittleBoard™ (EBX) line is for applications exposed to harsh environments.

PC/104

Ampro by ADLINK™ CoreModule® products provide unmatched fanless operation over temperature extremes, resistance to shock and vibration, conformal coating, no wings, embedded BIOS, and a long product life reputation. The CoreModule® continues to distinguish itself as an Extreme Rugged™ product for a multitude of applications.
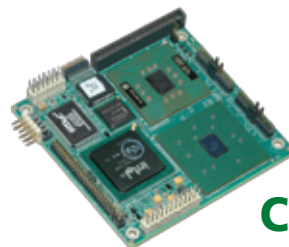
CoreModule®

EBX

The high-performance, feature-rich LittleBoard™ SBCs are based on the industry standard EBX form factor, co-invented by Ampro. Since 1984, LittleBoard™ SBCs have been used stand-alone or as a base with stacked electronics for long lifecycle embedded applications, requiring extreme ruggedness, ruggedness, reliability, high-performance processing, networking and video. Using identical mechanical format, connector placement and pinout, for 25 years, these Extreme Rugged™ SBCs are unique in offering only low-power processors for high-reliability applications.

LittleBoard™

EPIC

Featuring high performance and a standard interface, EPIC ReadyBoard™ SBC products are very cost-effective for common applications. The ReadyBoard™ family is a great platform for applications such as user interface terminals for medical equipment, networked systems, building automation, kiosks, gaming, industrial applied computing and control devices. The ReadyBoard™ would benefit any high-volume embedded application that requires high performance and low cost.
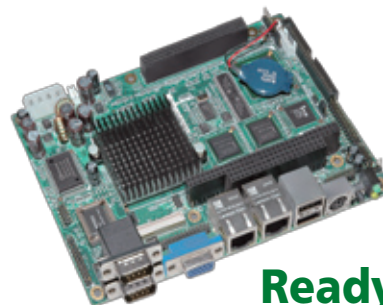
ReadyBoard™

What are ISM™ & SUMIT™

What is ISM™?

ISM™, short for Industry Standard Module™, is a pure 90mm x 96mm form factor (compatible with PC/104) that addresses shortcomings of existing small form factors:

- Fitting circuitry without extending beyond the board outline.
- Meeting top-and bottom-side component height restrictions.
- Decoupling form factors from expansion interfaces.
- Enabling flexible expansion bus and I/O connectorization.
- Allowing bus combinations that were previously undefined and unnamed.

LittleBoard™
EBX • 203mmx146mm

ReadyBoard™
EPIC • 165mmx115mm

CoreModule®
ISM • 90mmx96mm
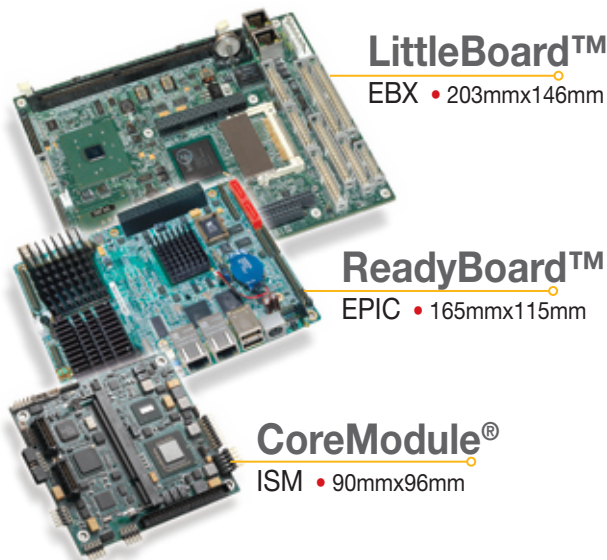
SBC manufacturers have struggled to fit modern legacy-free platforms onto small form factors without protruding beyond the allowed board outlines with "wings". With the ISA bus, serial ports, and even the PCI bus no longer integrated into low power chipsets, it takes extra circuitry to meet the needs of many embedded applications.

What is included in the specification?

The ISM™ Specification defines the board size, four fixed mounting holes, component height limits, and flexible "expansion zones" for I/O and/or bus connectors. The fixed corner mounting holes allow re-use of enclosures without modifications in the future.
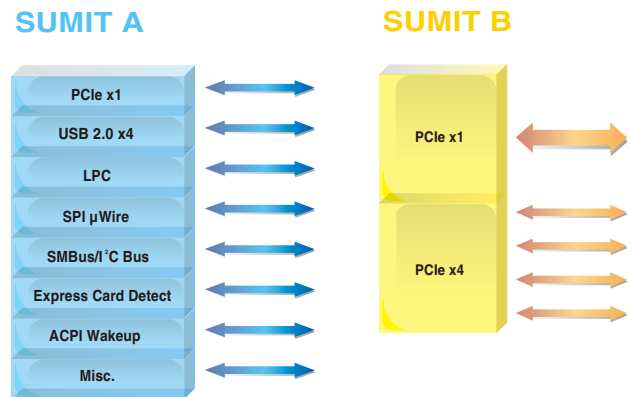
What interfaces are allowed?

ISM™ allows many combinations of bus and I/O connectors as long as those interfaces reside within the defined "expansion zones". ISM™ also offers a choice of using right-angle connectors that overhang the board edges, or extending the circuit board if vertical / non-overhang connectors are used.

What architectures are allowed?

ISM™ boards can be SBCs, stackable CPU and I/O cards, and even computer-on-modules (COMs). This flexibility allows easy migration from SBCs to COMs and vice-versa, or from processor to processor, while preserving investments in mechanical designs.

What is SUMIT™?

SUMIT™ is one of many board-to-board expansion interfaces that are permitted with ISM™. SUMIT™, short for Stackable Unified Module Interconnect Technology, offers PCI Express®, USB, SPI, I²C, and LPC Bus expansion using, footprint-efficient, 52-pin, high-bandwidth rugged Samtec Q2-series connectors. This mix of high-speed and low-speed buses simplifies the task of attaching many types of I/O without complex bridges and software.

SUMIT A

- PCIe x1
- USB 2.0 x4
- LPC
- SPI µWire
- SMBus/I²C Bus
- Express Card Detect
- ACPI Wakeup
- Misc.

SUMIT B

- PCIe x1
- PCIe x4

What is SUMIT-ISM™?

An ISM-size SBC with SUMIT™ expansion is called a "SUMIT-ISM™ SBC". An ISM-size I/O card is similarly called a "SUMIT-ISM™ I/O module". A more general naming scheme handles SBCs that accepts smaller boards as I/O cards, or SBCs with multiple buses, in a descriptive manner by mentioning the form factor first, followed by a list of expansion interfaces. For example, "ISM™ SBC with SUMIT™ and PC/104 expansion", and "EPIC SBC with SUMIT™ and PC/104 expansion" are some of the possibilities. The notations "SUMIT-ISM™" or "SUMIT™ on ISM™" are contracted forms for a special case, while boards with multiple interfaces could be more confusing to label with contracted names.

Who manages these standards?

A new, independent standards organization called the Small Form Factor Special Interest Group, or SFF-SIG, creates, adopts, and maintains a number of emerging standards for the low power, small form factor market. As consumer technology is often inappropriate for the embedded market, the standards feature re-usable modular building blocks, developed by embedded vendors for embedded OEMs. Many of these are optimized for ultra low power processors and controllers, yet scale up to multi-core processor environments. For more information about the specifications, visit www.sff-sig.org.

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7 Industrial Chassis
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9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

ADLINK TECHNOLOGY INC.

Ampro by ADLINK™ PC/104, EBX, and EPIC

CoreModule®

The CoreModule® family excels in Extreme Rugged™ applications and is frequently used in compact stacks where all the functions of the application are contained within the PC/104-ISM footprint. Stacks consist of a CoreModule® CPU and one or more off-the-shelf PC/104 (or SUMIT-ISM) I/O expansion modules. The stack requires a small footprint and can be mounted directly inside the system enclosure for a durable, dependable PC-compatible assembly.

	CoreModule®			
	740	**730**	**430**	**800**
CPU	1.6GHz Atom™	1.6GHz Atom™ or 1.1GHz Atom™	300MHz or 800MHz Vortex86	1.0GHz Celeron® M
Cache	512KB Level 2	512KB Level 2	16KB Level 1	512KB or 0KB Level 2
DRAM	512MB soldered DDR2 RA	Up to 2GB DDR2	256MB soldered DDR2 RA	Up to 1GB DDR
Bus Interface	PC/104-Plus	SUMIT-AB	PC/104	PCI-104
PATA/ SATA	(1) EIDE	(1) EIDE	Ultra DMA 100 2 drives	Ultra DMA 33/66/100 2 drives
Solid State Disk	No	Compact Flash	DiskOnChip and Compact Flash	IDE Module
Serial Port	(2) RS-232	No	(2) RS-232, (2) RS-232/422/485	(1) RS-232, (1) RS-232/422/485
Parallel Port	Yes	No	No	EPP/ECP bidirectional
Floppy	Yes	No	Shared with parallel	Shared with parallel
USB	(2) USB 2.0	(4) USB 2.0 (plus 4 on SUMIT)	(2) USB 2.0	(2) USB 2.0
Keyboard / Mouse	PS/2	No	PS/2	PS/2
GPIO	No	8	8	No
Audio	No	No	No	No
Network	Ethernet not supported (on request)	Gigabit Ethernet on PCIe x1	10/100BaseT Ethernet	Gigabit Ethernet
Video	Integrated Intel® Graphics Controller	Intel® GMA 500	Optional, 1600x1200	AGP 128-bit, 2048x1536
Flat Panel	Single Channel LVDS	Dual Channel LVDS	TLL	Dual Channel LVDS
Standard Operating Temperature	-20℃ to +70℃	-20℃ to +70℃	-20℃ to +70℃	-20℃ to +70℃
Optional Extended Temperature	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃
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LittleBoard™

The high-performance, highly integrated LittleBoard™ SBCs are based on the industry-standard EBX form factor. A LittleBoard™ SBC can be used as a standalone product or as a base with stacked electronics for long lifecycle embedded applications, requiring ruggedness, high performance processing, networking and video.

ReadyBoard™

The ReadyBoard™ line of SBCs follow the EPIC standard form factor and are very cost-effective for standard applications providing a great platform for applications such as user interface terminals networked systems, building automation, kiosk/point-of-information, gaming, industrial applied computing and medical devices. Truly any application would benefit from a fully-featured, low-cost embedded solution.

LittleBoard™			ReadyBoard™		
735	**800**	**620**	**850**	**830**	**820**
1.6GHz Atom™	1.4GHz Pentium® M 738, 1.0GHz Celeron® M 373 or 800MHz Celeron® M	500MHz Geode™ LX 800	2.26GHz Core™2 Duo (Socket P)	1.5GHz Core™2 Duo L7400 or 1.06GHz Celeron® M ULV 423	1.4GHz Pentium® M 738 or 1.0GHz Celeron® M 1.0GHz
512KB Level 2	2MB (Pentium® M) 512KB (Celeron® M) or 0KB Level 2	128KB Level 2	3MB Level 2	2MB Core™2 Duo, 1MB Celeron® M	2MB (Pentium® M), 512KB (Celeron® M) Level 2
Up to 2GB DDR	Up to 1GB DDR	Up to 1GB DDR	Up to 4GB DDR3	Up to 4GB DDR2	Up to 2GB DDR2
PC/104-*Plus* (PCI and ISA)	PC/104-*Plus* (PCI and ISA)	PC/104-*Plus* (PCI and ISA)	PCI-104, SUMIT	PCI/104	PCI/104
(1) EIDE (2) SATA	Ultra DMA 33/66/100 (4 drives)	(1) EIDE	No	(2) SATA	(1) Ultra DMA 33/66/100 (2 drives) (2) SATA
Compact Flash	Compact Flash	Compact Flash	Compact Flash	Compact Flash	Compact Flash
(2) RS-232, (2) RS-232/422/485	(4) RS-232/422/485	(2) RS-232, (2) RS-232/422/485	(2) RS-232/422/485	(2) RS-232, (2) RS-232/422/485	(2) RS-232, (2) RS-232/422/485
Floppy shared	EPP/ECP bidirectional	EPP/ECP bidirectional	No	EPP/ECP bidirectional	EPP/ECP bidirectional
Shared with parallel	Shared with parallel	Shared with parallel	No	Shared with parallel	Shared with parallel
(7) USB 2.0	(4) USB 2.0	(4) USB 2.0	(4) USB 2.0 (plus 4 on SUMIT-A)	(6) USB 2.0	(4) USB 2.0
PS/2	PS/2	PS/2	PS/2	PS/2	PS/2
8	No	22	8	8	8
AC97	AC97	AC97	High Definition Audio	AC97	AC97
Gigabit Ethernet and 10/100BaseT	Gigabit Ethernet and 10/100BaseT	10/100BaseT Ethernet	Dual Gigabit Ethernet	Gigabit Ethernet	Gigabit Ethernet and 10/100BaseT
Intel® GMA 950 core	AGP 128-bit, 2048x1536	AGP 24-bit, 1600x1200	Integrated Intel® 4500MHD engines	Integrated Intel® 950 GMA engines	Integrated Intel® 900 GMA engines
Dual Channel LVDS	Dual Channel LVDS	TTL, LVDS	Dual Channel LVDS	LVDS /DVI	LVDS , DVI
-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	0°C to +60°C	0°C to +60°C	0°C to +60°C
-40°C to +80°C	-40°C to +85°C	-40°C to +85°C	-20°C to +70°C	N/A	-20°C to +65°C
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10 Ampro by ADLINK Extreme Rugged

ADLINK TECHNOLOGY INC.

CoreModule® 740

Atom™ PC/104-*Plus* Single Board Computer with ICH8-M Chipset

Features

- Intel® Atom™ N450 1.6GHz Processor
- Onboard single channel DDR2 SDRAM
- PC/104-Plus Expansion
- Integrated graphics DirectX 9 controller at 200MHz
- Single Channel 18-bit LVDS and Analog VGA

Choose Ampro by ADLINK™ CoreModule™ 740 for…

Low power performance Atom™ platform targeting Extreme Rugged™ and space-constrained applications.

Description

Ampro by ADLINK™ CoreModule® 740 SBC uses an Intel® Luna Pier platform with 1.6GHz Atom™ N450 Pineview-M processor and ICH8M I/O Control Hub. It includes USB 2.0, Single channel IDE, LPC, Floppy, Parallel, Serial ports, LPT, Stack-through connectors and integrated graphics in a compact ISM form factor SBC.

Specifications

Core System

CPU - 1.6GHz Intel® Atom™ N450 Processor

Cache – 512KB L2 Cache

Memory – On board 512MB soldered DDR2 RAM for rugged applications

Chipset – Intel® ICH8-M I/O Control Hub

FSB – 1066MHz

BIOS – AMI with CMOS backup in 16 Mbit SPI BIOS

Hardware Monitor – DC voltages, CPU temperature

Bus Interface

PC/104-Plus, IDE, LPC, Parallel

I/O

USB - 2 USB 2.0 Ports

Floppy

Serial – 2 RS232

Keyboard/Mouse – PS/2 interface

Network Interface

Ethernet not supported*

*Note: contact us for Ethernet function support

Video Interface

Integrated DirectX 9 graphics controller in Intel® Atom™ Pineview-M N450 processor

Single Channel 18-bit LVDS / Analog VGA

Software & Development Tools

OS Support – Linux / Windows® CE 6.0 / XPe / VxWork 6.6 / QNX 6.4**

BIOS – AMI with ACPI 2.0

**Note: Available upon request. Contact us for additional software support.

Power Specifications

Input Power - AT mode (12 V +/- 5%), ATX mode (12 V and 5 Vsb +/- 5%)

Power States - Supports S0, S1, S3, S4, S5

Mechanical

Size – 90x96mm (3.6x3.8"), PC/104-*Plus* form factor

Board Thickness – .093" (2.36mm thick)

Temperature

• Standard: -20°C to +70°C

• Extended: -40°C to +85°C

• Storage: -55°C to +85°C

Humidity – 90% at 60°C

Shock

Non-operation: 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B

Vibration

Operation: 11.95 Grms, 50-2000 Hz, each axis, MIL-STD-202G Method 214A

Ordering Information

Model Number	Description/Configuration
CM-740-R-16	CoreModule™ 740, Intel® Atom™ N450, 1.6GHz, PC/104-*Plus*, 512MB soldered DDR2 RAM
CM-740-L-16	Quick Start Kit (CoreModule™ 740, 1.6 GHz, 1GB RAM, cable kit, software, documentation)

CoreModule® 730

Atom™ SUMIT-ISM™ Single Board Computer
Highly Integrated

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4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

Features

- Ultra low power Atom™ SBC
- Gigabit Ethernet
- 4 USB, 8 GPIO
- IDE, CompactFlash
- SUMIT™ expansion
- ISM™ form factor
- Single-board Solution

EXTREME RUGGED

Choose the Ampro by ADLINK™ CoreModule® 730 for…

Space-constrained systems targeting the lowest-power Atom™ chipset in the new ISM™ (Industry Standard Module) form factor, without a custom baseboard.

Description

Based on the Intel® Atom™ CPU and US15W System Controller Hub (SCH), the Ampro by ADLINK™ CoreModule® 730 provides a mid-performance control and compute platform for a wide range of applications. Featuring the new SUMIT™ expansion interface for legacy I/O and PCI Express support, this tiny 90x96mm footprint SBC is well-rounded with Gigabit Ethernet, CRT and flat panel video, 4 USB ports, IDE interface, CompactFlash socket, GPIO support, and optional 4 serial port PC/104 add-on card.

Specifications

Core System

Choice of
-1.6GHz Atom™ Z530
-1.1GHz Atom™ Z510
Cache – 512KB Level 2
DRAM – Up to 2GB DDR2 533 SODIMM
Chipset – Intel® US15W SCH
FSB – 533 / 400MHz
System Controllers – PC-compatible DMA and interrupt controllers and timers
Real Time Clock – Battery-backed RTC / CMOS
Watchdog Timer
Powerfail Reset – Triggers when key voltage drops below predetermined threshold

Bus Interface

SUMIT-AB (PCIe, LPC, SPI, I2C, USB), SUMIT-A only for R-11 model

I/O

PATA – Single Ultra DMA IDE (1 drive)
CompactFlash socket
USB – 4 USB 2.0 ports (plus 4 on SUMIT™)
GPIO – Eight general-purpose digital I/O pins

Network Interface

Ethernet – Intel® 82574IT Gigabit Ethernet on PCIe x1

Video Interface

Controller - Integrated on US15W SCH
Intel® GMA 500 ultra low power core
3D and 2D engine
HD hardware video decode
18/24-bit LVDS, up to 112MHz pixel clock
Dual display with independent pipes
CRT via Chrontel CH7317 RGB DAC

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux Windows® CE 6.0, 5.0, XP, XPe
BIOS – AMI BIOS

Mechanical

Size – 90x96mm (3.6x3.8"); ISM™ form factor
Power Requirements – (with 2GB RAM, 100% loading)
- 1.6GHz: 0.7A @ 5V
- 1.1GHz: 0.6A @ 5V
Temperature (100 LFM system air flow)
  • Standard: –20°C to +70°C
  • Extended: –40°C to +85°C
  • Storage: –55°C to +85°C
Board Thickness – .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
CM-730-R-11	CoreModule® 730, 1.1 GHz Atom™ CPU, 0MB RAM, Video, Ethernet, SUMIT-A
CM-730-R-15	CoreModule® 730, 1.6 GHz Atom™ CPU, 0MB RAM, Video, Ethernet, without SUMIT
CM-730-R-16	CoreModule® 730, 1.6 GHz Atom™ CPU, 0MB RAM, Video, Ethernet, SUMIT-AB
CM-730-L-16	1.6 GHz QuickStart Kit (R-16 SBC, 1GB RAM, cable kit, software)
MM-SIO	MiniModule™ Serial I/O Card, stackable legacy I/O SUMIT™ board for CoreModule® 730

ADLINK TECHNOLOGY INC.

CoreModule® 430

Features

- –40°C to +85°C
- 10/100 Ethernet, 3D Video
- 4 Serial, 2 USB, 8 GPIOs
- PC/104 Expansion
- Ultra Low Power
- 486 migration

EXTREME RUGGED

Choose the Ampro by ADLINK™ CoreModule® 430 for…

Rugged, space-constrained, legacy-friendly embedded systems with modest CPU performance requirements.

Description

Based on the Vortex86SX 300MHz or Vortex86DX 800MHz processor, the Ampro by ADLINK™ CoreModule® 430 provides 4 serial ports (two with RS-422/485 capability), 10/100BaseT Ethernet, CRT and flat panel video, 2 USB, IDE, floppy and GPIO support in a PC/104 form factor.

Specifications

Core System

CPU – 300MHz Vortex86SX or 800MHz Vortex86DX
Cache – 16kB I-cache, 16kB D-cache
DRAM – 256MB soldered DDR2
System Controllers – PC-compatible DMA and interrupt controller and timers
Real Time Clock – Battery-backed RTC/CMOS
Watchdog Timer
Powerfail Reset – Triggers when key voltage drops below predetermined thresholds

Bus Interface

PC/104 (ISA)

I/O

PATA – DMA 100 IDE interface supports up to two hard drives
CompactFlash socket
Serial – 4 ports, two RS-232/422/485
Parallel – EPP /ECP bidirectional port, shared with floppy interface
Floppy – Supports 1 to 2 drives, shared with parallel port
USB – 2 USB 2.0 ports
Keyboard/Mouse – PS/2 interface
GPIO – Eight general-purpose digital I/O pins

Network Interface

Ethernet - One integrated Vortex86 port

Video Interface

Controller – Integrated
– 64-bit single-cycle 100MHz 2D graphics engine
– Supports resolutions to 1600x768
– 32MB / 64MB DDR2 video memory
– Supports TFT panels
– Supports 3.3V, 5V flat panels

Software & Development Tools

OS Support – QNX® v6.3, Windows® CE 5.0, 6.0
BIOS – AMI BIOS

Mechanical

Size – 90x96mm (3.6x3.8"); PC/104 form factor
Power Requirements – 1.3A @ 5V
Temperature (100 LFM system air flow)
  • Standard: –20° to +70°C
  • Extended: –40° to +85°C
  • Storage: –55° to +85°C
Board Thickness – .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
CM3-430-R-10	CoreModule® 430, 300MHz Vortex CPU, 256MB RAM, Ethernet
CM3-430-R-11	CoreModule® 430, 300MHz Vortex CPU, 256MB RAM, Video, Ethernet
CM3-430-R-12	CoreModule® 430, 800MHz Vortex CPU, 256MB RAM, Video, Ethernet
CM3-430-L-12	800MHz QuickStart Kit (R-12 SBC, cable kit, software, documentation)

CoreModule® 800

Celeron® M PCI-104 Single Board Computer
Ultra-High Performance

1 AdvancedTCA Products
2 6U cPCI Blades
3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

Features

- Gigabit Ethernet
- High Performance Video
- 2 RS-232/422/485 Serial ports
- 2 USB 2.0 ports
- PC/104 without wings
- HALT report available

EXTREME RUGGED

Choose the Ampro by ADLINK™ CoreModule® 800 for…

Extreme Rugged™ embedded applications that need ultra-high performance in a compact module that does not violate PC/104 outline specifications. Contact Ampro by ADLINK™ for HALT report.

Description

The Ampro by ADLINK™ CoreModule® 800 PCI-104 compatible SBC offers ultra low power Centrino performance with advanced networking, high-performance graphics and all the requisite PC-compatible component subsystems.

Specifications

Core System

CPU – 1.0GHz ULV Celeron® M 373

Cache – 512KB or 0KB Level 2

DRAM – Up to 1GB PC2700 DDR333 SODIMM

Chipset – Intel® 855GME/ICH4M

FSB – 400MHz

System Controllers – PC-compatible DMA and interrupt controllers and timers

Real Time Clock – Battery-backed RTC/CMOS

Watchdog timer

Powerfail Reset – Triggers when input voltage drops below predetermined thresholds

Bus Interface

PCI/104 (PCI), downward-stacking

PC/104 to PC/104-*Plus* bridge through optional MiniModule™ ISA card

I/O

PATA – Single Ultra DMA 33/66/100 IDE interface, supports up to two hard drives

Serial – 2 ports, RS-232/422/485

Parallel – EPP/ECP bidirectional port

Floppy – Supports 1 or 2 drives, shared with parallel

USB – 2 USB 2.0 ports (two root hubs)

Keyboard/Mouse – PS/2 interface

Network Interface

Ethernet – Intel® 82541 (1000BaseT) Ethernet

Video Interface

Controller – Integrated Intel® Extreme Graphics 2-AGP 4X 128-bit 3D engine

– Supports resolutions to 2048x1536

– Up to 64MB UMA Frame Buffer

– Dual channel LVDS

– Supports 3.3V or 5V flat panels

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, VxWorks® v5.5.1, QNX® v6.3, Windows® CE 5.0, XP, XPe

BIOS – AMI

Mechanical

Size – 90x96mm (3.6x3.8"); PCI-104 form factor

Power Requirements – (with 512MB RAM, 100% CPU load) –2.8A @5V

Temperature (100 LFM system air flow)

 • Standard: –20° to +70°C

 • Extended: –40° to +85°C

 • Storage: –55° to +85°C

(See manual for thermal operating requirements)

Board Thickness – .120" (3.05mm)

Ordering Information

Model Number	Description/Configuration
CM3-800-R-10	CoreModule® 800, 1GHz ULV Celeron® M CPU, 512KB L2 cache, PC/104, Ethernet, 2 COM
CM3-800-L-10	1GHz 512KB Cache QuickStart Kit (R-10 SBC, 512MB RAM, cable kit, software, documentation)
MM3-ISA-R-11	MiniModule ISA: PCI-104 to PC/104-*Plus* Bridge

ADLINK TECHNOLOGY INC.

LittleBoard™ 735

Atom™ EBX Single Board Computer
Feature Rich, Legacy Friendly

Features

- Legacy migration solution
- Dual Ethernet – Gigabit and 10/100BaseT
- 4 COM, 4 USB, audio
- SATA, IDE, Compact Flash
- PCIe Mini Card socket
- PC/104-*Plus* expansion
- Full-featured Atom™ platform

EXTREME RUGGED

Choose the Ampro by ADLINK™ LittleBoard™ 735 for…

Migrating legacy EBX systems to the latest lowest-power Atom™ platform.

Description

Based on the Intel® Atom™ CPU and 945GSE chipset, the Ampro by ADLINK™ LittleBoard™ 735 provides a feature-rich mid-performance SBC for a wide range of legacy-friendly applications. Featuring a PC/104-*Plus* expansion interface for legacy PC/104 and PC/104-*Plus* modules, this SBC is well-rounded with dual Ethernet, CRT and flat panel video, 4 serial ports, 4 USB ports, SATA and IDE interfaces, Compact-Flash socket, PCIe Mini Card socket, High Definition Audio and GPIO support for an easy upgrade from older EBX SBCs.

Specifications

Processor

CPU – 1.6GHz Atom™ N270

Cache – 512KB Level 2

DRAM – Up to 2GB DDR2 667 SODIMM

Chipset – Intel® 945GSE

FSB – 533MHz

System Controllers – PC-compatible DMA and interrupt controllers and timers

Real Time Clock – Battery-backed RTC / CMOS

Watchdog Timer

Powerfail Reset – Triggers when key voltage drops below predetermined threshold

Bus Interface

PC/104-*Plus* (PCI and ISA)

I/O

PATA – Single Ultra DMA

CompactFlash socket

SATA – 2 devices

PCIe Mini Card socket

Serial – 4 ports, two are RS-232/422/485

Parallel-floppy shared

USB – 7 USB 2.0 ports

Keyboard/Mouse – PS/2 interface

HD Audio – AC97 High Definition Audio

GPIO – Eight general-purpose digital I/O pins

Network Interface

Ethernet – One Intel® 82574IT Gigabit Ethernet on PCIe x1, one Intel® 82562 10/100BaseT

Video Interface

Controller – Integrated

Intel® GMA 950 core

3D and 2D engine

HD hardware video decode

Dual Channel 18-bit LVDS

Dual display with independent pipes

CRT via chipset DACs

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux Windows® CE 6.0, 5.0, XP, XPe

BIOS – AMI with ACPI 2.0

Mechanical

Size – 203x146mm (8.00x5.75"); EBX form factor

Power Requirements – (with 2GB RAM, 100% Loaded) – 2.4A @5V

Temperature (100 LFM system air flow)
- Standard: –20°C to +70°C
- Extended: –40°C to +80°C
- Storage: –55°C to +85°C

Board Thickness - .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
LB-735-R-16	LittleBoard™ 735, 1.6 GHz Atom™ CPU, 0MB RAM, video, Ethernet, passive heatsink for -20°C to +70°C
LB-735-F-16	LittleBoard™ 735, 1.6 GHz Atom™ CPU, 0MB RAM, video, Ethernet, heatsink w/ fan for -40°C to +80°C
LB-735-L-16	1.6 GHz QuickStart Kit (R-16 board, 1GB RAM, cable kit, software, passive heatsink)

10

LittleBoard™ 800

Pentium® M EBX Single Board Computer High Performance
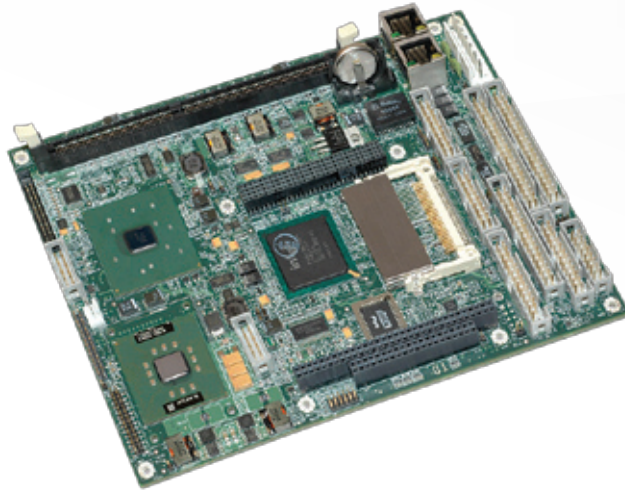
Features

- Intel® Extreme Graphics (CRT and LVDS flat panel)
- Dual Ethernet – Gigabit and 10/100BaseT
- 4 RS-232/422/485 Serial, 4 USB 2.0 ports
- PC/104-*Plus* expansion

EXTREME RUGGED

Choose the Ampro by ADLINK™ LittleBoard™ 800 for…

Compact, full featured, rugged embedded applications that need ultra-high performance, high speed I/O, and full PC/104-*Plus* expandability.

Description

The Ampro by ADLINK™ LittleBoard™ 800 EBX SBC offers you a choice of high performance, low voltage Centrino® processors, advanced networking, and high performance graphics.

Specifications

Core System

Choice of
– 1.4GHz LV Pentium® M 738
– 1.0GHz UL V Celeron® M 373
– 800MHz ULV Celeron® M
Cache – 2MB, 512KB or 0KB Level 2
DRAM – Up to 1GB PC2700 DDR333 DIMM
Chipset – Intel® 855GME/ICH4M
FSB – 400MHz
System Controllers – PC-compatible DMA and interrupt controllers and timers
Real Time Clock – Battery-backed RTC/CMOS
Watchdog Timer
Powerfail Reset – Triggers when input voltage drops below predetermined threshold

Bus Interface

PC/104-*Plus* (PCI and ISA)

I/O

PATA – Two Ultra DMA 33/66/100 IDE interfaces,
         supports up to two hard drives each (four total)
CompactFlash on Secondary IDE
Serial – 4 ports, RS-232/422/485
Parallel – EPP/ECP bidirectional port
Floppy – Supports 1 or 2 drives
USB – 4 USB 2.0 ports (four root hubs)
Keyboard/Mouse – PS/2 interface
Audio – AC97 High Definition Audio

Network Interface

Ethernet – Dual, Intel® 82541 (Gigabit) and Intel® 82551ER (10/100BaseT)

Video Interface

Controller – Integrated Intel® Extreme Graphics 2
– AGP 128-bit 3D engine
– Supports resolutions to 2048x1536
– Up to 64MB UMA Frame Buffer
– Dual channel LVDS
– Supports 3.3V and 5V flat panels

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, VxWorks® v5.5.1, QNX® v6.3, Windows® CE 6.0, 5.0, XP, XPe
BIOS – AMI

Mechanical

Size – 203x146mm (8.0x5.75"); EBX form factor
Power Requirements (with 128MB RAM, 100% Loaded)
– 1.4GHz   3.4A @5V
– 1.0GHz   2.8A @5V
– 800MHz   3.0A @5V
Temperature (100 LFM system air flow)
  • Standard: –20° to +70°C
  • Extended: –40° to +85°C (F-21 model)
  • Storage: –55° to +85°C
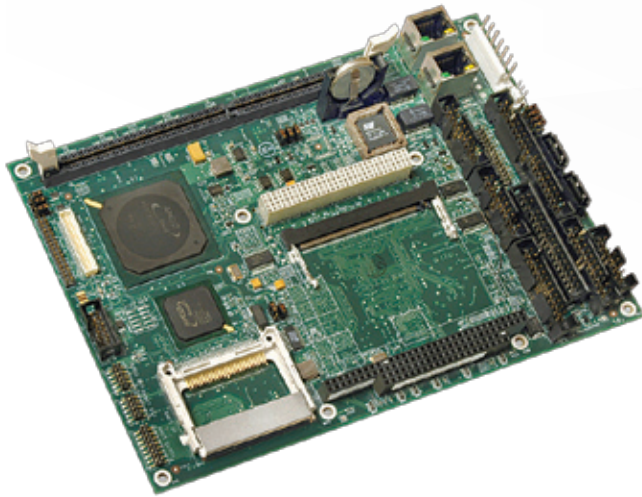Board Thickness – .093" (2.36mm)

Ordering Information

Model Number	Description/Configuration
LB3-800-R-08	LittleBoard™ 800, 800MHz ULV Celeron® M CPU, PC/104-*Plus*, dual Ethernet, video, 4 COM
LB3-800-R-10	LittleBoard™ 800, 1.0GHz ULV Celeron® M CPU, PC/104-*Plus*, dual Ethernet, video, 4 COM
LB3-800-R-21	LittleBoard™ 800, 1.4GHz LV Pentium® M CPU, PC/104-*Plus*, dual Ethernet, video, 4 COM
LB3-800-F-21	LittleBoardT™ 800, 1.4GHz LV Pentium® M CPU, PC/104-*Plus*, dual Ethernet, video, 4 COM with fan for above +70°C
LB3-800-L-21	1.4GHz QuickStart Kit (R-21 SBC 512MB RAM, cable kit, software, documentation)
LB3-ALL-X-01	LittleBoard™ 800 cable kit

1 AdvancedTCA Products
2 6U cPCI Blades
3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

LittleBoard™ 620

Geode™ EBX Single Board Computer
Low Power, Easy Interface

Features

- ISA DDMA support
- Dual 10/100 Ethernet
- PC/104-*Plus* expansion
- Fanless operation
- Mini PCI socket
- SATA support

EXTREME RUGGED

Choose the Ampro by ADLINK™ LittleBoard™ 620 for…

High volume embedded applications that need high performance and low power.

Description

The Ampro by ADLINK™ LittleBoard™ 620 provides high-performance, low-power processing with advanced networking and all the requisite PC-compatible component subsystems with PC-style connectors.

Specifications

Core System

500MHz Geode™ LX 800

Cache – 128KB Level 2

DRAM – Up to 1GB DDR333 DIMM

Chipset – AMD CS5536

FSB – 400MHz

System Controllers – PC-compatible DMA and interrupt controllers and timers

Real Time Clock – Battery-backed RTC/CMOS

Watchdog Timer

Powerfail Reset –Triggers when key voltage drops below predetermined threshold

Bus Interface

PC/104-*Plus* and Mini PCI socket

I/O

PATA – Single Ultra DMA

CompactFlash socket

SATA optional

Serial – 4 ports, two are RS-232/422/485

Parallel – floppy shared

USB – 4 USB 2.0 ports

IrDA – Dedicated IrDA

Keyboard/Mouse – PS/2 interface

Audio – AC97 High Definition Audio

GPIO – 22

Network Interface

Dual Ethernet – Intel® 82551 10/100BaseT

Video Interface

Controller - Integrated in LX 800

– Hardware Video Accelerator

– Supports resolutions to 1600x1200

– Up to 4MB UMA Frame Buffer

– Supports 24-bit TTL and LVDS

– LVDS transceiver onboard

Software

OS Support – Ampro by ADLINK™ Embedded Linux®, VxWorks®, QNX®, Windows® CE 6.0, 5.0, XP, XPe

BIOS – AMI with Ampro by ADLINK™ extensions including ISA DMA

Mechanical

Size – 203x146mm (8.00x5.75”); EBX form factor

Power Requirements (with 512MB RAM, 100% Loaded)

–500MHz 2.2A @ 5V

Temperature (100 LFM system air flow)

- Standard: –20° to +70°C
- Extended: –40° to +85°C
- Storage: –55° to +85°C

Board Thickness – .093” (2.36mm)

Ordering Information

Model Number	Description/Configuration
LB3-620-R-12	LittleBoard™ 620, 500MHz Geode™, dual Ethernet, SATA, no RAM, PC/104-*Plus*
LB3-620-L-12	500MHz QuickStart Kit (R-12 SBC, 512MB RAM, cable kit, software, documentation)
LB3-ALL-X-01	LittleBoard™ 620 cable kit (RoHS)

ReadyBoard™ 850

Core™2 Duo EPIC Single Board Computer with SUMIT™ Expansion and GM45/ICH9-M Chipset

1 AdvancedTCA Products
2 6U cPCI Blades
3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

Features

- Intel® Core™2 Duo Processor Supported
- Dual Channel DDR3 SODIMM up to 4GB
- PCI-104 and SUMIT Expansion
- Dual Gigabit LAN
- Single/Dual Channel 18/24-bit LVDS and Analog VGA

RUGGED

Choose the Ampro by ADLINK™ ReadyBoard™ 850 for…

Compact embedded applications that need ultra high CPU performance and high speed I/O

Description

The Ampro by ADLINK™ ReadyBoard™ 850 SBC uses an Intel® Core™2 Duo processor for ultra high performance. It includes dual Gigabit Ethernet, USB 2.0, SATA and high end graphics in a compact EPIC form factor SBC with PC style connectors. Featured is the new SUMIT™ expansion interface for legacy I/O and PCI Express support.

Specifications

Core System

CPU – Intel® Core™2 Duo up to 2.26GHz (Socket P)
Cache – 3MB L2 Cache
DRAM – Up to 4GB Dual Channel DDR3 800/1066 SODIMM
Chipset – Intel® GM45 Express GMCH/ICH9-M
FSB – 1066MHz
BIOS - AMI with CMOS backup in 16 Mbit SPI BIOS
Hardware Monitor - Supplies voltages and CPU temperature

Bus Interface

PCI-104, SUMIT™

I/O

SATA – 2 devices
USB – 4 USB 2.0 Ports, plus 4 more on SUMIT-A
Serial – 2 are RS232/422/485
LED & reset – Power, IDE(CF) active, SATA active, reset button
Keyboard/Mouse – PS/2 interface
GPIO – 8
Audio – High Definition Audio

Network Interface

Ethernet – Dual Intel® 82574L Gigabit ports

Video Interface

Mobile Intel® Graphic Media Accelerator 4500MHD
Intel® Clear Video Technology
Graphics core speeds up to 533MHz
Dual panel display with two independent pipelines
Single/Dual Channel 18/24-bit LVDS
CRT resolutions up to QVGA

Software & Development Tools

OS Support – Linux / Windows® CE 6.0 / XPe / VxWork 6.6 / QNX 6.4*
BIOS – AMI with ACPI 2.0

Power Specifications

Input Power – AT mode (12 V +/- 5%), ATX mode (12 V and 5 Vsb +/- 5%)
Power States – Supports S0, S1, S3, S4, S5

Mechanical

Size – 165.1x114.3mm (6.5x4.5”); EPIC form factor
Board Thickness – .062” (1.6mm)
Temperature
• Standard: 0°C to +60°C
• Extended: -20°C to +70°C
• Storage: -20°C to +75°C
Humidity – 90% at 60°C
Shock - 15G peak-to-peak, 11ms duration, non-operation
Random Vibration - MIL-STD-202G, Method 214A, Table 214-1, Condition A (5Grms)

Ordering Information

Model Number	Description/Configuration
RB-850-S	ReadyBoard™ 850, Socket, dual Gigabit Ethernet, no RAM
RB-850-S-P8400	ReadyBoard™ 850, 2.26 GHz CPU, dual Gigabit Ethernet, no RAM
RB-850-L-P8400	Quick Start Kit (ReadyBoard™ 850, 2.26 GHz, 1GB RAM, cable kit, software, documentation)

ADLINK TECHNOLOGY INC.

ReadyBoard™ 830

Core™2 Duo EPIC Single Board Computer
Ultra High I/O Bandwidth, Easy Interface
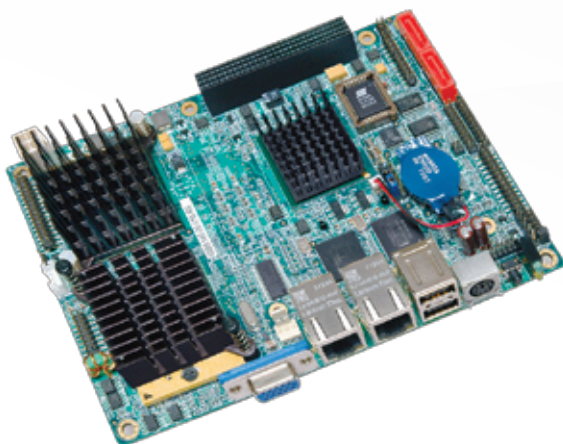
Features

- ACPI Power Management
- Gigabit Ethernet
- Two SATA ports
- PCI Express Mini Card socket
- LVDS and DVI support

INDUSTRIAL

Choose the Ampro by ADLINK™ ReadyBoard™ 830 for…

Compact embedded applications that need ultra high CPU performance and high speed I/O.

Description

The Ampro by ADLINK™ ReadyBoard™ 830 SBC uses an Intel® Core™2 Duo processor for ultra high performance. It includes dual Gigabit Ethernet, USB 2.0, SATA and high end graphics in a compact EPIC form factor SBC with PC style connectors.

Specifications

Core System

Choice of
–1.50GHz Core™2 Duo L7400
–1.06GHz ULV Celeron® M 423
Cache – 2MB Core™ Duo, 1MB Celeron® M
DRAM – Up to 4GB DDR2 533 SODIMM
Chipset – Intel® 945GME/ICH7-M
FSB – 667MHz
System Controllers – PC-compatible DMA and interrupt controllers and timers
Real Time Clock – Battery-backed RTC/CMOS
Enhanced Power Management with full support of ACPI 2.0
Watchdog Timer
Powerfail Reset –Triggers when input voltage drops below predetermined threshold

Bus Interface

PC/104, PCIe Mini Card

I/O

SATA – 2 devices
CompactFlash
Serial – 4 ports, 2 are RS-232/422/485
Parallel – EPP/ECP bidirectional port shared with floppy interface
Floppy – Supports 1 or 2 drives, shared with parallel port
USB – 6 USB 2.0 ports
Keyboard/Mouse – PS/2 interface
GPIO – 8
Audio – AC97: Line-in, Line-out, Mic

Network Interface

Ethernet - Dual Intel® 82573V Gigabit ports

Video Interface

Intel® GMA 950, 224 MByte 64 Bit Video RAM (DVMT 3.0)
Dual panel display with two independent pipelines
Flat panel interface, resolutions up to 1920x1200
HD hardware motion compensation to support HD high-bit-rate MPEG2 media playback
HDTV (1080i/p) support
CRT resolutions up to 2048x1536 @ 75 Hz, including 1920x1080 @ >85 Hz (HDTV)
Onboard TV encoder supports HDTV (420p, 720p and 1080i), component and S-Video for TV-Out
DVI Interface

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, Windows® CE 6.0, 5.0, XP, XPe®
BIOS – AMI with ACPI 2.0

Mechanical

Size – 165.1x114.3mm (6.5x4.5"); EPIC form factor
Power Requirements (with 512MB RAM, 100% Loaded)
–1.50GHz 2.2A @ 12V
–1.06GHz 2.1A @12V
Temperature (100 LFM system air flow)
  • Standard: 0°C to +60°C
  • Storage: –20°C to +75°C
Board Thickness – .062" (1.6mm)

Ordering Information

Model Number	Description/Configuration
RB4-830-R-30	ReadyBoard™ 830, 1.5GHz LV Core™2 Duo L7400, dual Gigabit Ethernet, no RAM
RB4-830-R-10	ReadyBoard™ 830, 1.06GHz ULV Celeron® M 423, dual Gigabit Ethernet, no RAM
RB4-830-L-30	1.50GHz QuickStart Kit (R-30 SBC, 1GB RM, cable kit, software, documentation)

ReadyBoard™ 820

Pentium® M EPIC Single Board Computer
High I/O Bandwidth, Easy Interface

1 AdvancedTCA Products
2 6U cPCI Blades
3 6U cPCI Platforms
4 3U cPCI Blades
5 3U cPCI Platforms
6 Industrial SBCs & MBs
7 Industrial Chassis
8 IPC Accessories
9 Computer-On-Modules
10 Ampro by ADLINK Extreme Rugged

Features

- ACPI 2.0 power management
- Dual Ethernet – Gigabit and 10/100BaseT
- 4 USB 2.0
- 2 SATA ports

RUGGED

Choose the Ampro by ADLINK™ ReadyBoard™ 820 for…

High volume, compact embedded applications that need high CPU performance and I/O bandwidth along with RoHS compliance.

Description

The Ampro by ADLINK™ ReadyBoard™ 820 SBC uses a high performance, low-power Centrino® processor. It includes Gigabit Ethernet, USB 2.0, SATA and high performance graphics in an easy to use EPIC form factor SBC.

Specifications

Core System

Choice of
– 1.4GHz LV Pentium® M 738
– 1.0GHz Celeron® M
Cache – 2MB Level 2
DRAM – 1GB DDR2 533 SODIMM
Chipset – Intel® 915GME/ICH6M
FSB – 400MHz
System Controllers – PC-compatible DMA and interrupt controllers and timers
Real Time Clock – Battery-backed RTC/CMOS
Enhanced Power Management with full support of ACPI 2.0
Watchdog Timer
Powerfail Reset – Triggers when input voltage drops below predetermined threshold

Bus Interface

PC/104

I/O

PATA – Single Ultra DMA 33/66/100 channel supports up to two devices
SATA – 2 devices
CompactFlash
Serial – 4 ports, 2 are RS-232/422/485
Parallel – EPP/ECP bidirectional port shared with floppy interface
Floppy – Supports 1 or 2 drives, shared with parallel port
USB – 4 USB 2.0 ports
Keyboard/Mouse – PS/2 interface
GPIO – 8
Audio – AC'97: Line-in, Line-out, Mic

Network Interface

Ethernet - One Intel® 82573V Gigabit port on PCIe x1 lane; one Intel® 82551QM 10/100BaseT port

Video Interface

Controller – Integrated Intel® 2D/3D engines
– Supports CRT and DVI display interfaces
– Supports Intel® DVMT 3.0 (Dynamic Video Memory Technology which allows maximum memory allocation support based on total system memory
– Supports 3.3V and 5V LVDS flat panels

Software & Development Tools

OS Support – Ampro by ADLINK™ Embedded Linux®, Windows® CE 5.0, XP, XPe
BIOS – AMI with ACPI 2.0

Mechanical

Size – 165.1x114.3mm (6.50x4.50"); EPIC form factor
Power Requirements (with 512MB RAM, 100% Loaded)
- 1.4GHz 4.2A @ 5V
- 1.0GHz 3.6A @ 5V
Temperature (100 LFM system air flow)
• Standard: 0°C to +60°C
• Extended: –20°C to +65°C
• Storage: –20°C to +75°C
Board Thickness – .062" (1.6mm)

Ordering Information

Model Number	Description/Configuration
RB4-820-R-21	ReadyBoard™ 820, 1.4GHz Pentium® M, dual Ethernet, no RAM
RB4-820-R-10	ReadyBoard™ 820, 1.0GHz Celeron® M, dual Ethernet, no RAM
RB4-820-L-21	1.4GHz QuickStart Kit (R-21 SBC, 1G RAM, cable kit, software, documentation)

ADLINK TECHNOLOGY INC.

Ampro by ADLINK™ Computer Systems
General Overview

Ampro by ADLINK™ provides system products that deliver quality, reliability, durability, compatibility, high performance and long product lifecycle. The heart of every one of our systems is a reliable, field-proven single board computer (SBC).

RuffSystem™

Designed to tolerate the harshest environments, ADLINK's RuffSystem™ products are truly rugged by design. These Extreme Rugged™ systems provide passive convection cooling, use Ampro by ADLINK™ Extreme Rugged system boards, and meet MIL-STD-810 requirements for shock and vibration over wide temperature and humidity ranges.

MilSystem™

MilSystem mission computers are high-performance systems designed for tight integration into military vehicle and other platforms. MIL-STD-D38999 connectors, rugged-by-design internal components, and completely passive cooling maximize reliability for operations in harsh conditions. MilSystems provide shock and vibration immunity exceeding MIL-STD-810F standards, and operate at full CPU speed over a wide temperature range of -40 to +75°C.

	RuffSystem™		MilSystem™	
	840	**735**	**840**	**735**
Internal Board	COM 840 with rugged EBX Carrier	LittleBoard™ 735	COM 840 with rugged EBX Carrier	LittleBoard™ 735
Form Factor	EBX with COM Express	EBX	EBX with COM Express	EBX
CPU	Up to 1.66GHz Core™2 Duo	1.6GHz Atom™ N270	Up to 1.66GHz Core™2 Duo	1.6GHz Atom™ N270
Maximum Memory	4GB DDR2 667	2GB DDR2 533	4GB DDR2 667	2GB DDR2 533
Expansion	Mini PCI, PCIe Mini Card	PC/104-*Plus*, PCIe Mini Card	Mini PCI, PCIe Mini Card	PC/104-*Plus*, PCIe Mini Card
Maximum Storage	128GB SSD	128GB SSD	128GB SSD	128GB SSD
Optional Drive	CompactFlash	CompactFlash	CompactFlash	CompactFlash
Internal Drive Bay	Single 2.5"	Single 2.5"	Single 2.5"	Single 2.5"
Ethernet	2x 1000BaseT	1x 1000BaseT 1x 10/100BaseT	2x 1000BaseT	1x 1000BaseT 1x 10/100BaseT
I/O	2x RS-232 2xRS-232/422/485 4x USB, Parallel, Audio	2x RS-232 2x RS-232/422/485 4x USB, Parallel, Audio	2x RS-232 2xRS-232/422/485 4x USB, Parallel, Audio	2x RS-232 2x RS-232/422/485 4x USB, Parallel, Audio
Standard OS	Windows® XP or Ubuntu Linux® (Windows® CE, QNX, and VxWorks supported)	Windows® XP or Ubuntu Linux® (Windows® CE, QNX, and VxWorks supported)	Windows® XP or Ubuntu Linux® (Windows® CE, QNX, and VxWorks supported)	Windows® XP or Ubuntu Linux® (Windows® CE, QNX, and VxWorks supported)
Power Supply	Wide-range 14 to 32 or 12 to 25 VDC	Wide-range 14 to 32 or 12 to 25 VDC	Wide-range 14 to 32 or 12 to 25 VDC	Wide-range 14 to 32 or 12 to 25 VDC
Cooling	Convection Cooled	Convection Cooled	Convection Cooled	Convection Cooled
Environment	Extreme Rugged™	Extreme Rugged™	Extreme Rugged™	Extreme Rugged™
Standard Operating Temp.	-20°C to +65°C	-20°C to +65°C	-20°C to +65°C	-20°C to +65°C
Extended Operating Temp.	-40°C to +75°C	-40°C to +75°C	-40°C to +75°C	-40°C to +75°C
Size (WxHxD)	8x10 x3"	8x10x3"	8x10 x3"	8x10x3"
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3 6U cPCI Platforms
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6 Industrial SBCs & MBs
7 Industrial Chassis
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10 Ampro by ADLINK Extreme Rugged

ADLINK TECHNOLOGY INC.

RuffSystem™ 840

Extreme Rugged™
Intel® Core™2 Duo Computer System

Features

- Passive convection-cooled chassis
- Intel® Core™2 Duo processor
- Mini PCI and PCIe Mini Card expansion
- Tested to MIL-STD-810F standards
- Wide range input: 12 to 32 VDC
- Windows® XP Professional or Ubuntu Linux® Preinstalled
- Windows® CE, QNX®, and VxWorks® supported

EXTREME RUGGED

Featuring: COM 840 with Intel® Core™2 Duo 1.6GHz and Intel® 965GME Chipset

Designed with Ampro by ADLINK™ Extreme Rugged™ COM 840 and EBX baseboard

- Size (WxHxD): 8x10x3"
- IP50 rated chassis

Specifications

Board Compatibility

COM 840 with rugged EBX Carrier Board

High performance, conduction cooled 1.6GHz Intel® Core™2 Duo L7500 processor

Chipset – Intel® GME965/ICH8

Modular/Expandable

Mini PCI and PCI Express Mini Card

I/O

SATA - Internal HDD or SSD (up to 128GB)

CompactFlash

VGA - supports up to 2048 x 1536 resolution

Ethernet – 2x GbE

Serial – 4 ports, 2 supporting RS-232/422/485

Parallel – EPP/ECP bidirectional port

Floppy – Supported by USB (bootable)

USB – 4 USB 2.0 ports (4 root hubs)

PS/2 – Keyboard, Mouse

Audio – Speaker-out, Line-in, Mic

Network Interface

Ethernet - Dual Gigabit Ethernet: Intel® 82572EI and Intel® 82566

Operating Systems

Available with Windows® XP Professional or Ubuntu Linux® pre-installed

Support for Windows® CE, QNX® or VxWorks®

Mechanical

Size (WxHxD): 8x10x3"

Environmental

Temperature
- Standard: –20°C to +65°C
- Extended: –40°C to +75°C
- Storage: –40°C to +85°C

IP50 rated

Meets MIL-STD-810 (shock, vibration, temperature) testing

Power

- 14~32 VDC (standard)
- 12~25 VDC (optional)

Ordering Information

Model Number	Description/Configuration
RUF840W-02010-1101	RuffSystem™ 840, 1.6GHz Core 2 Duo L7500, 32GB SSD, 2GB RAM, WinXP Professional, 14-32VDC, RoHS
RUF840W-02010-A101	RuffSystem™ 840, 1.6GHz Core 2 Duo L7500, 32GB SSD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
RUF840W-03030-1101	RuffSystem™ 840, 1.6GHz Core 2 Duo L7500, 128GB SSD, 4GB RAM, WinXP Professional, 14-32VDC, RoHS
RUF840W-03030-A101	RuffSystem™ 840, 1.6GHz Core 2 Duo L7500, 128GB SSD, 4GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
RUF-ACC-US	RuffSystem™ Starter Kit: AC adapter, software, and documentation

Other configurations available. Please contact your salesperson.

RuffSystem™ 735

Extreme Rugged™
Intel® Atom™ Computer System

Features

- Passive convection-cooled chassis
- Intel® Atom™ system
- Tested to MIL-STD-810F standards
- Internal expansion for two PC/104-*Plus* cards
- Wide range input: 12 to 32 VDC
- Windows® XP Professional or Ubuntu Linux® Pre-installed
- Windows® CE, QNX®, and VxWorks® supported

Featuring: LittleBoard™ 735 with Intel® Atom™ 1.6GHz and 945GSE Chipset

Designed with Ampro by ADLINK™ LittleBoard™ 735

- Size (WxHxD): 8x10x3"
- IP50 rated chassis

Specifications

Board Compatibility

LittleBoard™ 735 EBX SBC
Low power, conduction cooled Intel® Atom™ processor
–Intel® Atom™ processor N270 at 1.6GHz
Chipset – Intel® 945GSE/ICH7-M

Modular/Expandable

Support for two PC/104-*Plus* expansion cards

I/O

SATA – Internal HDD or SSD (up to 128GB)
CompactFlash
VGA – supports up to 2048 x 1536 resolution
Ethernet – 1xGbE, 1x10/100
Serial – 4 ports, 2 supporting RS-232/422/485
Parallel – EPP/ECP bidirectional port
Floppy – Supported by USB (bootable)
USB – 4 USB 2.0 ports (4 root hubs)
PS/2 – Keyboard, Mouse
Audio – Speaker-out, Line-in, Mic

Network Interface

Ethernet – Dual, Intel® 82541 (Gigabit) and Intel® 82551ER (10/100BaseT)

Operating Systems

Available with Windows® XP Professional or Ubuntu Linux® pre-installed
Support for Windows® CE, QNX® or VxWorks®

Mechanical

Size (WxHxD): 8x10x3"

Environmental

Temperature
- Standard: –20°C to +65°C
- Extended: –40°C to +75°C
- Storage: –40°C to +85°C
IP50 rated
Meets MIL-STD-810 (shock, vibration, temperature) testing

Power

- 14~32 VDC (standard)
- 12~25 VDC (optional)

Ordering Information

Model Number	Description/Configuration
RUF735W-02010-1101	RuffSystem™ 735, 1.6 GHz Atom™ N270, 32GB SSD, 2GB RAM, WinXP Professional, 14-32VDC, RoHS
RUF735W-02010-A101	RuffSystem™ 735, 1.6 GHz Atom™ N270, 32GB SSD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
RUF735W-02100-1101	RuffSystem™ 735, 1.6 GHz Atom™ N270, 80GB HDD, 2GB RAM, WinXP Professional, 14-32VDC, RoHS
RUF735W-02100-A101	RuffSystem™ 735, 1.6 GHz Atom™ N270, 80GB HDD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
RUF-ACC-US	RuffSystem™ Starter Kit: AC adapter, software, and documentation

Other configurations available. Please contact your salesperson.

MilSystem™ 840

Extreme Rugged™ Intel® Core™2 Duo COTS Military Computer

Features

- Passive convection-cooled chassis
- Intel® Core™2 Duo system
- Tested to MIL-STD-810F standards
- Uniquely-keyed D38999 connectors
- Internal expansion for Mini PCI and PCIe Mini Card
- Wide range input: 12 to 32 VDC
- Windows® XP Professional or Ubuntu Linux® Preinstalled
- Windows® CE, QNX®, and VxWorks® supported

Featuring: COM 840 with Intel® Core™2 Duo 1.6GHz and 965GME Chipset

Designed with Ampro by ADLINK™ Extreme Rugged™ COM 840 and EBX baseboard

• Size (WxHxD): 8x10x3"

• IP50 rated chassis

Specifications

Board Compatibility

COM 840 with rugged EBX Carrier Board

High performance, conduction cooled 1.6GHz Intel® Core™2 Duo L7500 processor

Chipset – Intel® GME965/ICH8

Modular/Expandable

Mini PCI and PCI Express Mini Card

I/O

SATA – 1x Internal HDD or SSD (up to 128GB)
    – 1x External

CompactFlash

VGA – supporting up to 2048 x 1536 resolution

Ethernet – 2xGbE

Serial – 4 ports, 2 supporting RS-232/422/485

Parallel – EPP/ECP bidirectional port

Floppy – Supported by USB (bootable)

USB – 4 USB 2.0 ports (4 root hubs)

PS/2 – Keyboard

Audio – Speaker-out, Line-in, Mic

LVDS

Remote ATX power and indicators

Network Interface

Ethernet – Dual, Intel® 82541 (Gigabit) and Intel® 82551ER (10/100BaseT)

Operating Systems

Available with Windows® XP Professional or Ubuntu Linux® pre-installed

Support for Windows® CE, QNX® or VxWorks®

Mechanical

Size (WxHxD): 8x10x3"

Environmental

Temperature
- Standard: –20°C to +65°C
- Extended: –40°C to +75°C
- Storage: –40°C to +85°C

IP50 rated

Meets MIL-STD-810 (shock, vibration, temperature) testing

Power

- 14~32 VDC (standard)
- 12~25 VDC (optional)

Ordering Information

Model Number	Description/Configuration
MIL840W-02010-1101	MilSystem™ 840, 1.6GHz Core 2 Duo L7500, 32GB SSD, 2GB RAM, WinXP Professional, 14-32VDC, RoHS
MIL840W-02010-A101	MilSystem™ 840, 1.6GHz Core 2 Duo L7500, 32GB SSD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
MIL840W-03030-1101	MilSystem™ 840, 1.6GHz Core 2 Duo L7500, 128GB SSD, 4GB RAM, WinXP Professional, 14-32VDC, RoHS
MIL840W-03030-A101	MilSystem™ 840, 1.6GHz Core 2 Duo L7500, 128GB SSD, 4GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
MIL-ACC-US	MilSystem™ Starter Kit: MC1, MC2, MC3 breakout cables, AC adapter, software, and documentation

Other configurations available. Please contact your salesperson.

MilSystem™ 735

Extreme Rugged™
Intel® Atom™ COTS Military Computer

Features

- Passive convection-cooled chassis
- Intel® Atom™ system
- Tested to MIL-STD-810F standards
- Uniquely-keyed D38999 connectors
- Internal expansion for two PC/104-*Plus* cards
- Wide range input: 12 to 32 VDC
- Windows® XP Professional or Ubuntu Linux® Pre-installed
- Windows® CE, QNX®, and VxWorks® supported

Featuring: LittleBoard™ with Intel® Atom™ 1.6GHz 1.6GHz and 945GSE Chipset

Designed with Ampro by ADLINK™ LittleBoard™ 735

- Size (w,h,d): 8x10x3"
- IP50 rated chassis

Specifications

Board Compatibility

LittleBoard™ 735 EBX SBC
Low power, conduction cooled Intel® Atom™ processor
Intel® Atom™ processor N270 at 1.6GHz
Chipset – Intel® 945GSE / ICH7M

Modular/Expandable

Support for two PC/104-*Plus* expansion cards

I/O

SATA – 1x Internal HDD or SSD (up to 128GB)
    – 1x External
CompactFlash
VGA – Supporting up to 2048 x 1536 resolution
Ethernet – 1xGbE, 1x10/100
Serial – 4 ports, 2 supporting RS-232/422/485
Parallel – EPP/ECP bidirectional port
Floppy – Supported by USB (bootable)
USB – 4 USB 2.0 ports (4 root hubs)
PS/2 – Keyboard
Audio – Speaker-out, Line-in, Mic
LVDS

Network Interface

Ethernet – Dual, Intel® 82541 (Gigabit) and Intel® 82551ER (10/100BaseT)

Operating Systems

Available with Windows® XP Professional or Ubuntu Linux® pre-installed
Support for Windows® CE, QNX® or VxWorks®

Mechanical

Size (WxHxD): 8x10x3"

Environmental

Temperature
- Standard: –20°C to +65°C
- Extended: –40°C to +75°C
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IP50 rated
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Power

- 14~32 VDC (standard)
- 12~25 VDC (optional)

Ordering Information

Model Number	Description/Configuration
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MIL735W-02010-A101	MilSystem™ 735, 1.6 GHz Atom™ N270, 32GB SSD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
MIL735W-02100-1101	MilSystem™ 735, 1.6 GHz Atom™ N270, 80GB HDD, 2GB RAM, WinXP Professional, 14-32VDC, RoHS
MIL735W-02100-A101	MilSystem™ 735, 1.6 GHz Atom™ N270, 80GB HDD, 2GB RAM, Ubuntu 8.04 LTS, 14-32VDC, RoHS
MIL-ACC-US	MilSystem™ Starter Kit: MC1, MC2, MC3 breakout cables, AC adapter, software, and documentation

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