



2011 Embedded Product Guide V1.0



Your Premiere Value-Added Manufacturer

Serving End-Users, OEMs & System Integrators Worldwide

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About ADL

Founded in 1994, Advanced Digital Logic Inc. (ADL) is a privately held company with headquarters in San Diego, CA. In July of 2010, ADL opened its European headquarters in Germany, (Advanced Digital Logic GmbH), and is now better positioned to support its customers on a global basis. ADL is one of the world's leading providers of embedded industrial single board computers, systems, peripherals and accessories for embedded and stand-alone applications.

Our Products

Our product lines include PC/104, PC/104-Plus, PCI-104, PCI/104-Express, 3.5" boards, and custom boards. Our products

are designed and manufactured under ISO 9001 with state-of-the-art equipment and tested during production at the factory. All computer boards and integrated systems are individually tested at ADL before shipping.

Customer Support

The commitment of our experienced, well trained sales and engineering staff, provide our customers with project planning assistance, specific application requirements, and can recommend the best integrated solution for a project. Our Technical Support and Customer Service departments are here to ensure your product satisfaction after the sale. We support and service what we sell.

Services

Our services include; standard and custom board designs, standard and custom thermal solutions for our ADL products, integration services, custom and standard enclosures, custom system solutions and overall system testing.

Markets We Serve

ADL serves customers in a variety of markets, including but not limited to; Medical, Aerospace, Transportation, Communication, Security, Defense, Process Control, R&D, Industrial Automation, Academia, etc.

PC/104 Is the Choice When Durability Counts...



PC/104 form factor boards offer the highest level of ruggedization and customization of any of the COTS embedded form factors. There are no baseboards to design and no onboard consumer grade connectors that limit the product implementation. All I/O's can be custom cabled to meet very specific needs, allowing the board to be deeply embedded within a system.

The fact is that most embedded products will provide adequate processing power when appropriately sized for the job at hand. I/O bandwidth and product expandability become critical data points when defining an embedded application platform. PC/104 is the choice when durability counts for everything in environments where other embedded boards can't play.

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PC/104 • PC/104-Plus • PCI/104-Express Embedded Single Board Computers

The ADL PC/104 SBC's are built for rugged durability to take on the jobs that other embedded boards can't. Whether the application is under-water, under-ground, on the rails or in the air, ADL PC/104 is on the job.

PCI/104-Express



ADLD25PC
Intel Atom D525 Dual Core, 1.80GHz

- Intel® Atom™ Dual Core™ D525, 1.80GHz
- Up to 4GB DDR3-800 DRAM SoDIMM204
- Bottom-Stacking PCI/104 Express – 4 x1 Lanes
- 2x SATA 300 Ports
- 1x 10/100/1000Mbit Ethernet LAN Port
- 4x COM Ports - 2x RS232 Ports, 2x RS232/422/485 Ports
- 8x USB2.0 Ports
- Onboard VGA and LVDS Ports
- PCIe Mini Socket
- Windows XP, Windows CE
- 7.1 HD Audio
- 16-bit GPIO Port
- Operating Range -25° to +70° C (-40° to +85° C available)
- +5V, +12V, +5 Suspend ± 5% Power Supply
- PCI/104-Express v1.0a Form Factor

PCI/104-Express



ADLGS45PC
Intel Celeron M / Core 2 Duo (SFF)

- Intel® Celeron® M / Core™ 2 Duo (SFF)
- Intel® GS45 / ICH9M-E Chipset
- Up to 4GB DDR3-1066MHz DRAM
- 2x 10/100/1000Mbit LAN Controllers
- CRT / LVDS Interface Onboard
- 4x SATA 3Gb/s with RAID Support
- 8x USB2.0 Ports
- 2x RS232/422/485 COM, LPT1
- SMBus Interface
- RTC and Watchdog Timer
- 8 Channel High Definition Audio
- Hardware Monitoring
- Integrated Trusted Platform Module (ITPM)
- +5V, +12V, +5 Suspend ± 5% Power Supply
- PCI/104-Express v1.0 Form Factor

PC/104-Plus



ADLS15PC
Intel Atom CPU1.1GHz – 1.60GHz

- Intel® Atom™
- 1.1GHz - 1.60GHz
- Intel® SCH US15W Chipset
- Up to 2GB DDR2-DRAM
- 1x 10/100/1000Mbit LAN Controller
- CRT / LVDS Interface Onboard
- 8x USB2.0 Ports
- PATA Storage Interface
- 2x RS232/422/485 COM, LPT1
- SMBus Interface
- RTC and Watchdog Timer
- 6 Channel High Definition Audio
- Hardware Monitoring
- Up To 8GB Onboard SSD
- +5V Single Rail Power Supply
- PC/104 -Plus embedded Form Factor



PCI/104



ADL945PC
Intel Core2 Duo /
Core-Duo/CoreSolo

- Intel® Core™2 Duo / Core™Duo / Core™Solo, 1.0GHz - 2.16GHz
- Intel 945GME / ICH7 Chipset
- 256MB - 2048MB DDR2-DRAM
- 1x 10/100Mbit LAN Controller, 1x 10/100/100 Mbit LAN Controller
- CRT / LCD interface on-board
- 2x Onboard SATA Ports, 1x Onboard PATA
- 6x USB2.0 Ports
- 2x RS232 COM, LPT1
- RTC and Watchdog Timer
- 6 Channel High Definition Audio
- Hardware Monitoring
- +5VDC Power Supply
- PC/104-Plus V2.0 Form Factor

PC/104-Plus



ADL855PC
Pentium M / Celeron M
CPU 0.6GHz – 1.8GHz

- Intel® Pentium® M / Celeron® M, 0.6GHz - 1.8GHz
- Intel® 855GME / ICH4 Chipset
- 128MB - 1024MB DDR-SDRAM
- 10/100 Mbit Lan Controller
- CRT/LCD on-board, Direct-X Video Controller
- PATA Hard Disk Interface
- 4 x USB2.0 Ports
- 2x RS232 COM, LPT1
- RTC and Watchdog Timer
- 6 Channel onboard Audio
- Hardware Monitoring
- +5VDC Power Supply
- PC/104-Plus V2.0 Form Factor

PC/104-Plus



ADLLX8PC
AMD Geode LX800

- AMD Geode™ LX800 / LX900
- 500MHz / 600Mhz
- SoDIMM200 up to 1GB DDR-400
- Built In Geode LX800 @ 0.9W
- CRT/LCD on-board
- 10/100 Mbit LAN Controller
- 4x USB V2.0 Ports
- PATA Hard Disk Interface
- 2x RS232/422/485 COM, LPT1
- RTC and Watchdog Timer
- 6 Channel Onboard Audio
- Hardware Monitoring
- +5VDC Power Supply
- Built In 16GB SSD Flash (optional)
- PC/104-Plus V2.0 Form Factor

3.5 Inch Embedded Single Board Computers

The ADL 3.5-inch SBC's combine user functionality with rugged performance; just the type of durability needed on the automation line, in the hospital, or automotive garage.



Call your Sales Representative for Availability

3.5" SBC



ADLS15HD
Intel Atom Z5xx 1.1GHz - 1.6GHz ,
US15W SCH

- Intel® Atom Z510 / Z530 Processor,
- Intel US15W System Controller Hub (SCH)
- Up to 2048MB DDR2 -533MHz DRAM
- 2x 10/100/1000Mbit LAN Controllers
- DVI-D / LVDS interface onboard
- UDMA-100 Primary PATA Interface
- 8x USB 2.0 Ports (4x internal headers)
- 2x RS232 COM Ports
- Mini-PCI socket
- Dedicated Resistive Touch Screen
- RTC and Watchdog Timer
- Power Management
- Hardware Monitoring
- 24V Isolated (20-30VDC tolerant)
- Extended Temp Range Available

3.5" SBC



ADL945HD
Intel Celeron M / Core Duo / Core 2
Duo: 1.07GHz - 2.16GHz

- Intel® Celeron® M / Core Duo / Core 2 Duo
- 945GME / ICH7R Chipset
- Up to 4GB DDR2 - 667MHz DRAM
- 1x 10/100Mbit LAN Controller and 1x 10/100/1000Mbit LAN Controllers
- DVI / LVDS Interface Onboard
- 2x SATA 300
- 8x USB 2.0
- 4x RS232 COM
- Dedicated Resistive Touch Screen
- RTC and Watchdog Timer
- Power Management
- Hardware Monitoring
- SM/I2C Bus
- 6 channel audio
- Mini-PCI socket
- 16 GPIO Interface
- ATX Power Control

3.5" SBC



ADL855HD
PENTIUM M / CELERON M CPU
0.6GHz - 1.8GHz

- Intel® Pentium® M / Celeron® M, 1.0GHz - 1.8GHz
- Intel® 855GME / ICH4, 400MHz FSB
- Up to 2GB DDR 333Mhz SDRAM
- 10/100 Mbit and 10/100/1000 Mbit Ethernet Ports
- 4x RS232 COM
- DVI / LVDS Interface Onboard
- ATA Primary / Secondary interface
- 6 x USB2.0 Ports
- Dedicated Resistive Touch Screen
- Mini-PCI Interface
- RTC and Watchdog Timer
- Power Management 5VDC, 5VDC Suspend (12VDC for fans)

Thermal Solutions for PC104 Single Board Computers



Designing successful embedded systems demands efficient PCB design, choosing low power and long life components, and the creation of an effective cooling solution within the parameters specified. While heat reduces the life of systems, efficient cooling solutions directly result in long-term reliability. Often, innovative solutions to heat-dissipation issues will create an improved operational envelope and lower total cost of ownership for those systems. Simply put, a successful cooling solution

meets or exceeds the performance goals of the OEM's design.

Standard heat conductive solutions typically use a flat mass of thermally conductive material, such as aluminum or copper, placed in direct contact with the processor / chipset and the interior wall of the metal enclosure. The conductive solution wicks the heat from the chips and transfers it to the case of the system where the heat is allowed to radiate out of the enclosure.

Standard convective thermal

solutions introduce airflow directed to move across the surface of a fin style heatsink placed on top of the processor/chipset. This can be done with the aid of an appropriately sized fan placed on top of the fin style heatsink. Alternately, enclosure airflow can be routed to flow across a fin style heatsink. In many cases convective solutions can also be used within sealed environments where the air is circulated.

ADL offers highly effective heat conductive and heat convective

thermal solutions tailored to maximize the longevity of your ADL product. Whether you need a convective or conductive solution, our thermal solution designs are sure to meet the demands of your extended temperature requirements.

Whether a customer orders our embedded industrial single board computers, or has a custom design requirement, we can develop a thermal solution that meets your requirement. Please contact your Sales Engineer for more information.

ADL PC/104 Thermal Solutions Matrix

Part No.	ITEM CODES	ADL855PC	ADL945PC	ADLLX8PC	ADLS15PC	ADLGS45PC	ADLD25PC
292054	ADLTS2HSS	X	X				
292055	ADLTS1LX			X			
292056	ADLTS2LX			X			
292057	ADLTS3LX			X			
292059	ADLTS4LX			X			
293052	ADL855PC-SPREADER	X					
293054	ADLTS2PIPE	X	X				
293057	ADLTS2HSS-FAN	X	X	X			
293162	ADL945PC-SPREADER (.6")		X				
293163	ADL945PC-SPREADER2 (1")		X				
293166	ADL945PC-LTSPREADER (low mass)		X				
TBD	ADL945PC-FANSINK		X				
292061	ADLS15PC-SPREADER				X		
292064	ADLS15PC-1"				X		
292063	ADLS15PC-FANSINK				X		
292062	ADLS15PC-PASSIVE				X		
297413	ADLGS45PC-FANSINK (spreader req'd.)					X	
293050	SPREADER-FANSINK		X	X		X	
292406	ADLGS45PC-SPREADER					X	
292410	ADLGS45PC-1"					X	
TBD	ADLD25PC-SP0600						X
TBD	ADLD25PC-SP1000						X
TBD	ADLD25PC-FANSINK						X
290010	CS-100 (chassis sim)	X	X	X	X	X	X

3.5-Inch Thermal Solutions Matrix

Part No.	Item Code	ADL855HD	ADL945HD	ADLS15HD
294840	ADL855HD-SPREADER	X		
294845	ADL945HD-SPREADER		X	
294835	ADLS15HD-SPREADER			X
294152	ADL35-BBHS (spreader req'd.)	X	X	X

ADLGS45SPC

Shown with ADL 0.6" Spreader for Wall Mounting



ADLS15PC

Shown with ADL Low Profile Heat Sink



ADL945PC

Shown with Heat Pipe

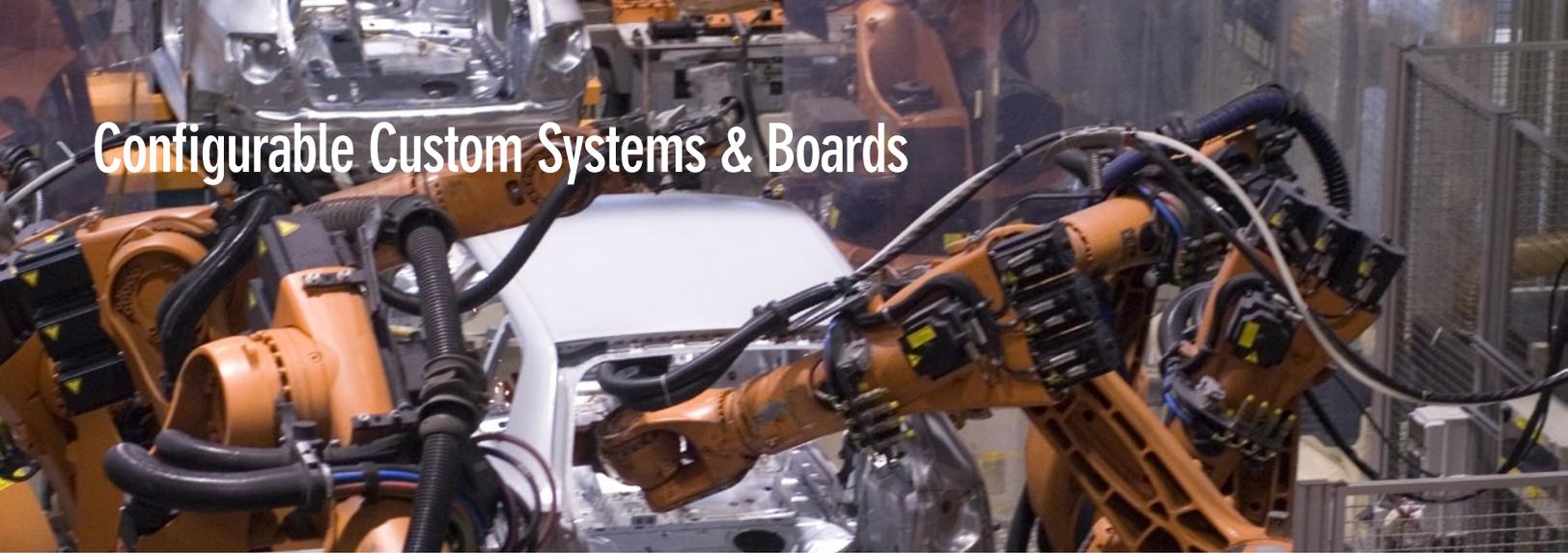


ADL945PC

Shown with Heat Sink and Fan



Configurable Custom Systems & Boards



Configurable Custom Systems

ADL offers a wide range of enclosures that bundle our PC/104 and 3.5" system boards and off-the-shelf peripherals into easy-to-integrate computing subsystems for your equipment designs.

Please discuss your requirements with your Sales Engineer. We may already have the designs that you're looking for.

- ADL PC/104 and 3.5" System Boards
- Low-profile to High-density Configurations are Available
- Sealed, Passive or Fan-cooled Solutions are Supported
- Development Cable Kits can be utilized for faster turns on prototyping requirements, while customer specified connectors together with custom I/O plates can be tailored to suit your specific needs
- Windows or Linux Operating Systems are Available



Configurable Custom Boards

ADL can deliver your boards the way you want them. Whether you need a fully custom design, or you simply need some connectors changed around on one of our existing products, ADL has the expertise to make modifications as you require them. We can also enhance your product for environmental purposes.

- Custom Board Design to Fit Your Unique Application
- Potting, Underfill and Coating Processes to Meet Your Durability Requirements
- Extended Temperature Prescreening Services in One of Our On-site Thermal Chambers
- Custom Connectorization of Existing Products
- Custom Cable Designs Available for Volume Orders



Peripherals and Power Supplies



ADLPCIE
DVI/HDMI/SATA/PATA
Designed for ADLGS45

- DVI/HDMI/SATA/PATA card for PCI104-Express modules
- 2x DVI/HDMI
- 2x Chromtel® CH7318C
- 1x DVI-D connector, optional 2 x 9 header
- 1x HDMI connector, optional 2 x 9 header
- 2x SATA / 1x IDE (optional)
- 1x JMB363
- Also available as "DVI/HDMI only"
- PCI-104 Bus passthrough
- 4x PCIe x1 connected through



ADLLAN
Dual Port Gigabit LAN Card
for PC/104-Plus

- 2x 10/100/1000 RJ-45 or optional 2 x 6 header(s)
- 2x Intel® 82541ER
- Requires two PCI loads
- Enhanced Power Management for low power applications
- High-Performance PHY Technology meets IEEE 802.3ab Specifications
- Footprint Compatibility with other Intel PRO Connections for Flexible Designs



ADLLVDSTTL
LVDS to TTL Flat Panel
Interface Adapter

- 4Ch, LVDS conversion to 18/24-Bit TTL
- Compatible with most 18/24 Bit Flat panels
- I2C for storing panel information
- Power connection with +5VDC and +12VDC
- PC/104 Stack mountable with mounting plate



ADL35PCIE
ADLGS45HD PCI-Express Custom-to-Standard Adapter

- PCI-Express adapter for use with the 2x40 pin custom PCIe connector (currently in place on the ADLGS45-HD)
- Variants Available
- V1: Four PCIe x1 connectors
- V2: One PCIe x4 connector
- V3: Two PCIe x1 connectors and one PCI-Express Minicard slot (TOP side shown on the left)



ADLPS104CF
Power Supply
with CF Socket PC/104+

- Input Voltage Filtering
- Up to (2) CFA2.1 Compact Flash Sockets
- Battery Option
- Direct Connect to ADL855PC Possible
- Power Reset
- Hard Disk LED
- Input Crowbar



ADLCFII
EIDE Compact Flash (CF) Adapter Card

- Supports card types I, II, and III
- Single and Dual port optional
- Each port Master/Slave configurable
- Optional card ejector
- Stack mountable with ADL mounting plate (PN: 201-2500)



USB-AI12-16A
High Speed Multifunction
12-Bit Analog Input

- High-speed USB 2.0 device, sampling rate to 500kHz
- All functions fully software configurable
- 12-bit resolution A/D converter
- 16 single-ended or 8 differential inputs
- Eight input ranges, unipolar or bipolar
- Real-time hardware auto-calibration and oversampling for accurate data
- Unique channel-by-channel programmable gains
- Data buffer for A/D



104-COM-8SM
Asynchronous, Serial
Communication Boards

- 8, 4 or 2 independent asynchronous serial COM ports
- Field selectable RS-232, RS-422 and RS-485, independent for each port
- Auto-RTS feature makes half-duplex RS-485 communications effortless
- Speeds up to 921.6K with 64-byte FIFO
- Fixed bias and jumper selectable termination provided on each transmit and receive channel simplifies cabling

For additional peripherals, please visit our website.

Development Kit & Cables for PC/104 Single Board Computers

CS-100

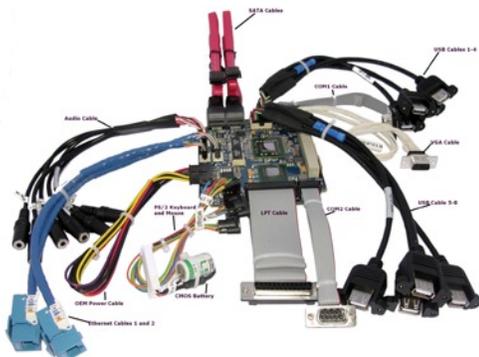
The CS-100 is a 100"sq. (645.16 cm sq.) collapsed chassis that is used to provide a thermal mass and radiative cooling surface for passive cooling of ADL CPUs. Drilled with ADL's universal mounting pattern, the CS-100 is compatible with all ADL PC/104 heat spreaders and pipes, regardless of the CPU upon which they are mounted. The included contains both M3 and 4-40 hardware, as well as precision standoffs to support 0.600" or 1.000" (0.2cm or 2.54cm) clearance spreader solutions.

- 10" x 10" x 0.5" (25.4cm x 25.4cm x 1.27cm) Thermal Chassis Simulator
- Run Fanless in a Development Environment
- Simulates "Real World" Thermal Dissipation on the Benchtop
- Precision Milled Standoffs for 0.600" and 1.000" (0.2cm or 2.54cm) clearance
- K-100 Powder Cast, Precision Milled Aluminum
- Universal Mount Pattern Supports all ADL Thermal Solutions
- Compatible with both M3 and 4-40 Hardware
- Represents an Aluminum Enclosure of 200"sq. (1290.32 cm sq.) Surface Area



ADLGS45PC-CK Cable Kit

ADL offers complete cable kits that are of production quality. All connectors are chosen for rugged, durable fit, with gold pins for the best contact possible. Where others offer "development" cables that may not stand up, ADL cables could be used in production. Custom lengths could be provided with volume orders.



Cable PN and Description	ADLLX8PC	ADL855PC	ADL945PC	ADLS15PC	ADLGS45PC
100-9635 - LPT 2.54mm	X	X	X	X	X
100-9636 - Std. IDE 2mm 44p 12in.	X	X	X		
100-9641 - ADL 30-pin Multi 2.54mm	X	X	X		
100-9643 - ADL VGA 2.54mm	X	X	X		
100-9644 - KB+MS+OPTBAT 2.54mm	X	X	X	X	X
*100-9655 - BATOPT (optional with 100-9644)	X	X	X	X	X
100-9665 - ADL COM1 2.54mm	X	X	X	X	X
100-9666 - ADL COM2 2.54mm	X	X	X	X	X
100-9670 - SATA (includes 2SATA, 1 Y-pwr)			X		X2
100-9680 - IDE 2mm 44p 5in	X	X	X	X	
100-9700 - ADL8xx Power w/ cap	X	X		X	
100-9705 - 2mm HD AUDIO				X	X
100-9710 - ADLLVDS (use only with ADLLVDSSTL board option)	X	X	X	X	X
100-9715 - ADL 2mm VGA				X	X
100-9720 - ADL 2mm LAN				X	X2
100-9725 - ADL 2mm USB				X2	X2
100-9812 - Pwr/w cap ADL945PC STD.			X		
100-9816 - Pwr/w cap ADL945PC Rt Ang			X		
100-9824 - 20-pin USB-LAN ADL945PC 2.54mm			X		
100-9845 - ADLGS45 OEM PWR					X
Kit total without ADLLVDS cable	10	10	13	11	14

Shaded: Dark Blue = NA, Light Blue = Optional

*The ADL battery option (100-9655) will be attachable to the Keyboard / Mouse cable to supply CMOS power, and is optional for all boards. The 100-9655 is included in all full cable kits.

ADL Solutions & Services

ADL is committed to providing rugged, high-performance solutions for embedded applications ranging from industrial railroad transportation and automotive projects to military fire control and navigation systems. To that end, we have assembled a range of solutions and services that help our customers thrive with high-performance SBCs capable of withstanding extreme vibration, environmental and temperature requirements.

Encrypted Communications Solution - Case Study

Illustrating this point is one recent success story where ADL helped a client create a MIL-810E compliant encrypted communications solution that required our PC/104 SBC to survive temperatures from -40°C - +85°C, salted fog, blowing sand, and a 9-hour flight vibration profile with spikes to 40G. In the end, the vibration profile required a custom thermal solution with a special bonding procedure to meet both the thermal dissipation and vibration demands, all of which were handled on a turnkey basis by ADL.

Ruggedization Services

Also making this success story possible, was our ruggedizing services such as extended

temperature screening for most of our SBCs and peripherals, as well as SBC coatings and component bonding services to enable applications where chafing, shock, or vibration is a key concern.

High Performance Solutions - Processing Power for Graphical Image Processing

In terms of performance, our new ADLGS45PC sets a new performance standard for PCI/104-Express SBCs with sufficient processing power to enable the most demanding data processing, networking and graphical data visualization for industrial and defense applications. Early adopters of our ADLGS45PC are implementing graphical image processing for real-time mapping applications, military encrypted data routing, and state-of-the-art law enforcement surveillance equipment.

New D525 Atom Processor with Integrated Graphics & Memory Controller

Our new ADLD25 features the new 500 Series family of processors with integrated graphics and memory controller and TDP on the order of 10-13W. It interfaces to the same ICH9M-E Southbridge as our ADLGS45PC, thus providing similar PCI/104-Express I/O

functionality with the low power necessary to enable rugged, high-performance portable and thermally constrained applications. These include thermally-constrained enclosures for industrial and military applications, as well as portable military applications such as transceivers for tactical communication, GIS mapping, night vision applications and more.

Thermal Solutions - Key to Fine-Tuning Rugged Solutions

Thermal solutions, both standard and custom, are often the key to fine-tuning the rugged solutions that our customers demand. The key to our success derives from our in-house thermal design capabilities coupled with closely located high-precision milling facilities which enable us to provide quick-turn solutions of unparalleled quality and precision.

In summary, if rugged, high-performance is the key to the successful deployment of your next project, ADL stands ready with the full range of solutions and services to make your project a reality.

Your Premiere Value-Added Manufacturer

Serving End-Users, OEMs & System Integrators Worldwide



NEW PCI/104-Express

ADLD25PC

**Intel Atom D525
Dual Core, 1.80GHz**

For Low Power, Thermally
Constrained and Harsh
Environment Applications

- Intel® Atom™ Dual Core™ D525, 1.80GHz
- Up to 4GB DDR3-800 DRAM SoDIMM204
- Bottom-Stacking PCI/104 Express – 4 x1 Lanes
- 2x SATA 300 Ports
- 1x 10/100/1000Mbit Ethernet LAN Port
- 4x COM Ports - 2x RS232 Ports, 2x RS232/422/485 Ports
- 8x USB2.0 Ports
- Onboard VGA and LVDS Ports
- PCIe Mini Socket
- Windows XP, Windows CE
- 7.1 HD Audio
- 16-bit GPIO Port
- Operating Range -25° to +70° C
(-40° to +85° C available)
- 90mm x 96mm PC/104 Form Factor
- +5V, +12V, +5 Suspend ± 5% Power Supply
- PCI/104-Express v1.0a Form Factor



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