

# A172

## Rugged Compact PC



Embedded Computing  
*without Compromise*



- Rugged Reduced SWaP PC
- Flexible Configuration Options
  - ▶ CPU
  - ▶ Mass Storage
  - ▶ Memory
  - ▶ OS
- I/O Interfaces
  - ▶ Gigabit Ethernet
  - ▶ Discrete I/O
  - ▶ Serial Ports
  - ▶ DVI Output
  - ▶ USB 2.0
  - ▶ CANbus
  - ▶ Stereo Audio Input + Output
  - ▶ Composite Video Input + Output
- Mini PCIe Slot for I/O Expansion
- Wide Input Voltage Range
- MIL-STD-704 and MIL-STD-1275 Compliant
- D38999 I/O and Power Connectors
- Operating System Support
  - ▶ Windows®
  - ▶ Linux®
  - ▶ VxWorks®
- Environmentally Sealed (IP67)
- Natural Convection Cooled
- Compact and Lightweight
- 50 ms Holdup Time (option)
- Removable Mass Storage (option)



[www.aitechsystems.com](http://www.aitechsystems.com)

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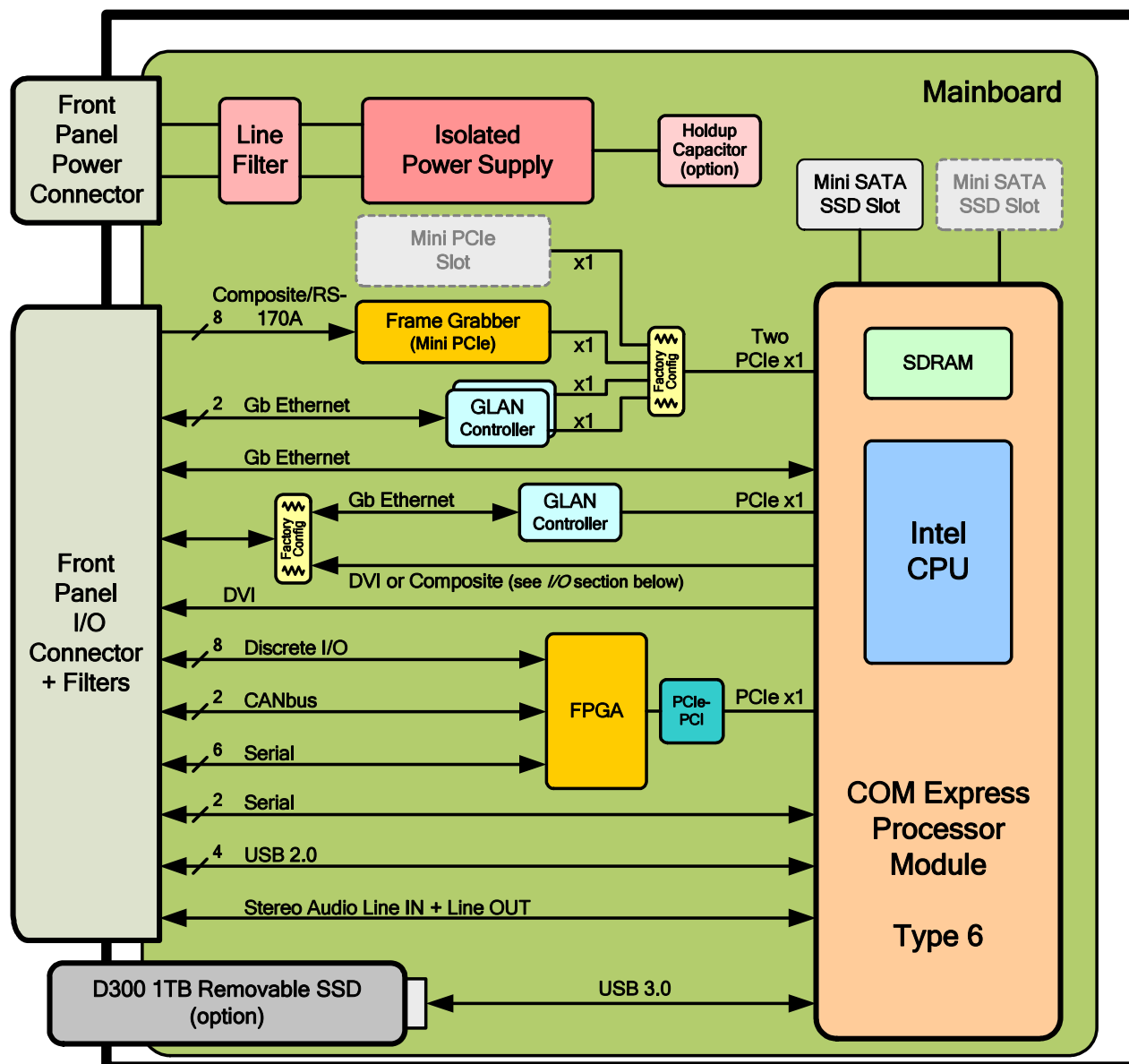
Aitech's A172 Rugged Compact PC (RCP) is a small, low power, high performance, rugged computer, suitable for any application that requires a high performance reliable RCP.

The A172 is designed around a standard COM Express (Type 6) module, which contains the system CPU and SDRAM, and provides a number of standard I/O interfaces.

The COM Express module is hosted on an Aitech main board, which provides additional I/O interfaces, and includes two mini SATA (mSATA) sites and two mini PCIe sites.

The mini SATA sites can accommodate standard SSD modules for system Flash mass storage and the mini PCIe slots can accommodate standard modules to provide additional system functionality.

The usage of standardized modules (COM Express, mini PCIe, and mini SATA) in the A172 design enables Aitech to build customized versions of the system to meet specific customer requirements (contact your Aitech representative for additional information), and also allows Aitech to offer updated system configurations as newer modules become available.



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### COM Express Module

Model	CPU	Memory	OS Support <sup>(3)</sup>	TPM	Power
<b>A172S</b>	Intel Core i7-4650U (4 <sup>th</sup> Gen) <ul style="list-style-type: none"><li>• 2 Cores/4 Threads</li><li>• 1.7 GHz Base Frequency</li><li>• 3.3 GHz Turbo Frequency</li><li>• HD Graphics 5000</li><li>• PassMark Score: 4123</li></ul>	DDR3L (non-ECC) @ 1600 MT/s Ordering Options: <ul style="list-style-type: none"><li>• 8 GB Single Channel</li><li>• 16 GB Dual Channel</li></ul>	VxWorks 6.9.4 Windows 7 ULT 64-bit Linux	1.2	<ul style="list-style-type: none"><li>• Minimum: 12 W<sup>(1)</sup></li><li>• Typical: 30 W<sup>(2)</sup></li></ul>
<b>A172B</b>	Intel XEON E3-1505L v6 (7 <sup>th</sup> Gen) <ul style="list-style-type: none"><li>• 4 Cores/8 Threads</li><li>• 2.2 GHz Base Frequency</li><li>• 3.0 GHz Turbo Frequency</li><li>• HD Graphics P630 (Gen 9)</li><li>• PassMark Score: 7887</li></ul>	DDR4 (with ECC) @ 1600 MT/s Ordering Options: <ul style="list-style-type: none"><li>• 8 GB Single Channel</li><li>• 16 GB Single Channel</li><li>• 32 GB Dual Channel</li></ul>	Windows 10 64-bit Linux	2.0	<ul style="list-style-type: none"><li>• Minimum: 15 W<sup>(1)</sup></li><li>• Typical: 45 W<sup>(2)</sup></li></ul>
<b>A172C</b>	Intel Core i7-7600U (7 <sup>th</sup> Gen) <ul style="list-style-type: none"><li>• 2 Cores/4 Threads</li><li>• 2.8 GHz Base Frequency</li><li>• 3.9 GHz Turbo Frequency</li><li>• HD Graphics 620 (Gen 9)</li><li>• PassMark Score: 5595</li></ul>	DDR4 (non-ECC) @ 1600 MT/s Ordering Options: <ul style="list-style-type: none"><li>• 8 GB Single Channel</li><li>• 16 GB Single Channel</li><li>• 32 GB Dual Channel</li></ul>	VxWorks 7.0 Windows 10 64-bit Linux	2.0	<ul style="list-style-type: none"><li>• Minimum: 12 W<sup>(1)</sup></li><li>• Typical: 30 W<sup>(2)</sup></li></ul>

- Notes:
- (1) Windows idle
  - (2) Windows running TAT (Thermal Analyses Tool) to exercise all CPUs to 80% load and Integrated Graphics Processor (IGP) to 70%
  - (3) Other operating systems may be partially supported, and additional driver porting may be available per customer request, depending on system configuration (contact an Aitech representative for more information)

### Memory Resources

<b>RAM</b>	Options determined by selected COM Express module (see the <i>COM Express Module</i> section above)
<b>On-Board SATA SSD</b>	Mini SATA SSD with Quick Erase and Secure Erase feature options (standard on-board SSD options are listed in <i>Ordering Information</i> below, additional options may be available per customer request, contact an Aitech representative for more info)
<b>Removable SSD</b>	Optional Aitech D300 Removable SSD (see <i>Ordering Information &gt; Special Options</i> ) See the D300 datasheet for more information on the removable SSD

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I/O	I/O Variant <sup>(1)</sup>	
	Variant #1	Variant #3
<b>Gigabit Ethernet (1000Base-T)</b>	4	2
<b>DVI Outputs (Single Link)</b>	1	2
<b>Composite Video Inputs</b> Supports RS-170A (NTSC)/PAL (auto detected) and simultaneous capture of all channels at full frame rates <sup>(5)</sup>	–	8
<b>Composite Video Outputs</b> Supports PAL (RS-170A [NTSC] support may be available via factory configuration per customer request, contact an Aitech representative for more information)	1	–
<b>Serial Ports</b> UART 16550 compatible	8 x RS-232 / 2 x RS-422 + 2 x RS-422/485 <sup>(2) (3)</sup>	
<b>Discrete I/O (Single-Ended)</b>	8 x Input/Output (software configurable)	
<b>CANbus</b> <sup>(4)</sup> Independent, isolated CAN 2.0B compatible interfaces, bit rates up to 1 Mb/s, Pelican operation mode support	2	
<b>USB 2.0</b>	4	
<b>Stereo Audio Line IN</b>	1	
<b>Stereo Audio Line OUT</b>	1	
<b>RGBHV Output</b>	N/A (available only per customer request, contact an Aitech representative for more information)	
<b>WiFi</b>	N/A (available only per customer request, contact an Aitech representative for more information)	

- Notes:
- (1) A172 I/O Variants offer different combinations/quantities of I/O via factory configuration; additional I/O options may be available per customer request (contact an Aitech representative for more information)
  - (2) Four pairs of serial ports are provided:
    - Each pair is software configurable as two RS-232 ports or one RS-422 port
    - Two of the four pairs are also individually software configurable as one RS-485 port

- (3) RS-422/485 serial port terminations are not installed by default
- (4) CANbus terminations are installed by default
- (5) Depending on system OS driver

## Enclosure Options

<b>Standard</b>	Default enclosure type, used when Hold-Up capacitor bank and/or removable SSD are not included
<b>Extended</b>	Slightly larger enclosure, used when Hold-Up capacitor bank and/or removable SSD are included  Includes more internal room to accommodate Hold-Up capacitor bank and removable SSD, and also provides a door which allows access for installation/removal of the removable SSD

## Mechanical

	Standard Enclosure	Extended Enclosure
<b>Dimensions</b>	260 x 180 x 46 mm [10.24 x 7.09 x 1.81"]	286 x 180 x 61 mm [11.26 x 7.09 x 2.41"]
<b>Weight</b>	<2.25 kg [5 lb]	<2.90 kg [6.4 lb]

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### Power

- Wide input voltage range
  - 10 – 32 V<sub>DC</sub> steady state operation
  - 12 V<sub>DC</sub> turn-on threshold
- Input reverse polarity protection (up to 32 V<sub>DC</sub>)
- EMI/RFI input filter
- On-board supplies isolated from external supply
- MIL-STD-704 and MIL-STD-1275 compliant
- 50ms Holdup Time (optional – see *Ordering Information > Special Options*)

### Environmental

<b>Operating Temp.</b>	-40 to +70 °C <sup>(1)</sup>
<b>Non-Operating Temp.</b>	-55 to +100 °C
<b>Vibration</b>	V2 per VITA 47
<b>Operating Shock</b>	OS1 per VITA 47
<b>Altitude</b>	-1,500 to +60,000 ft. <sup>(2)</sup>
<b>Relative Humidity</b>	0 – 100%
<b>Fungus</b>	Fungus Resistant

<b>Rain</b>	MIL-STD-810F, Method 506.4, Procedure III
<b>Dust</b>	MIL-STD-810F, Method 510.4, Procedure I & II
<b>Salt Fog</b>	MIL-STD-810F, Method 509.4
<b>Bench Handling</b>	MIL-STD-810F, Method 516.5, Procedure VI
<b>Ingress Protection</b>	IP67 <sup>(3)</sup>
<b>EMI/RFI</b>	MIL-STD-461

- Notes:
- (1) CPU throttling may occur depending on CPU usage and temperature
  - (2) Depending on temperature and system power dissipation
  - (3) With appropriate connections to system I/O and power connectors

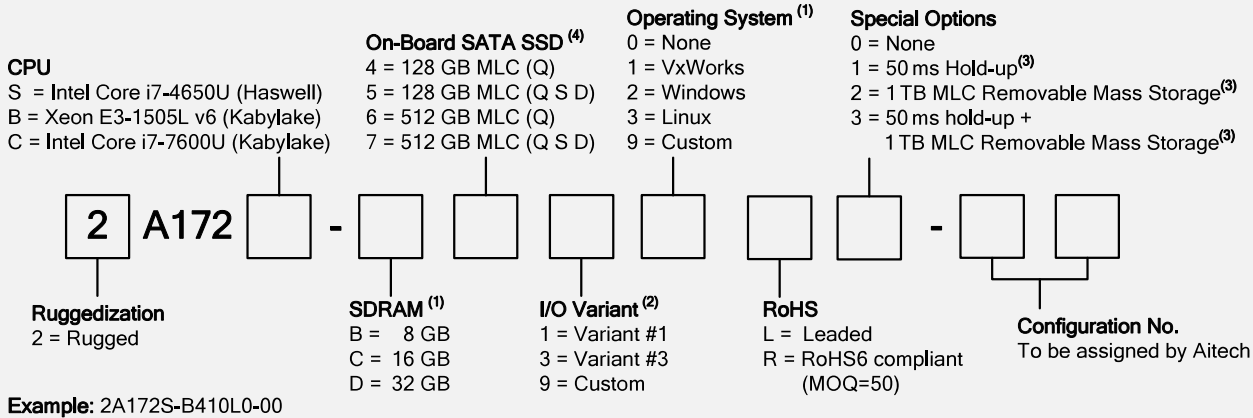
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### Ordering Information



Notes: (1) Refer to the *COM Express Module* table for available options for each module (3) Note differences in dimensions and weight when selecting these options  
(2) Refer to the *I/O* table for I/O combinations per Variant (4) Q = Quick Erase; S = Secure Erase; D = Destroy - using ATA Commands.

### Optional Accessories

<b>MCS172-1-00 *</b>	Set of Front Panel Mating Connectors for I/O Variant 1
<b>MCS172-3-00 *</b>	Set of Front Panel Mating Connectors for I/O Variant 3
<b>PSA-90W</b>	90W Power Supply
<b>2D300-01M0-00</b>	1 TB Removable Mass Storage
<b>TCA172-SK *</b>	A172 Starter Kit comprising: <ul style="list-style-type: none"> <li>J1 Power Cable</li> <li>J2 I/O Cable (1 x Serial, 1 x DVI, 2 x USB, 1 x GLAN, Audio Output)</li> </ul>
<b>A172 Custom Cable</b>	Ask your Aitech sales representative

\* Add "-CF" to part number for cadmium free (e.g.MCS172-1-00-CF)

### Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the A172 and additional software support.

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