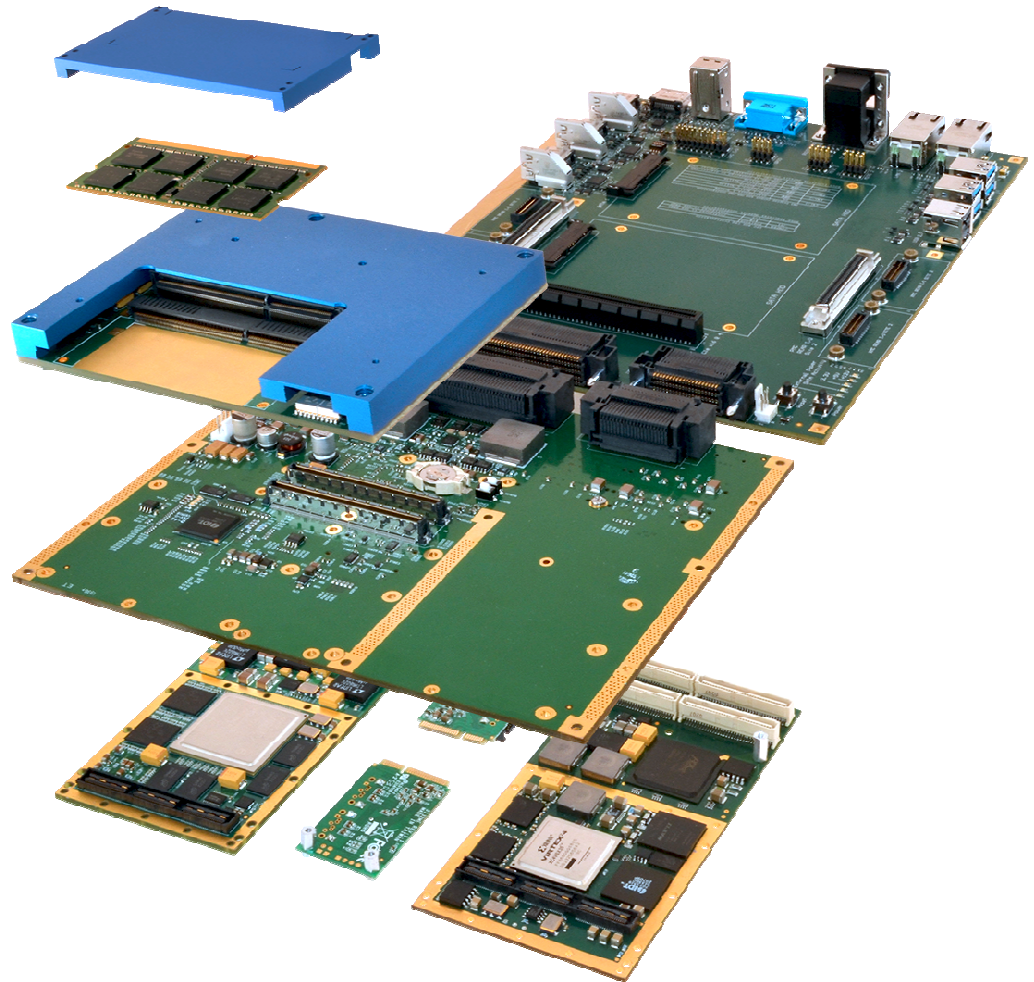


How to Build a Rugged COM Express System

*Simplifying the Design of a Custom,
Type 6 COM Express System.*



Why Choose COM Express?

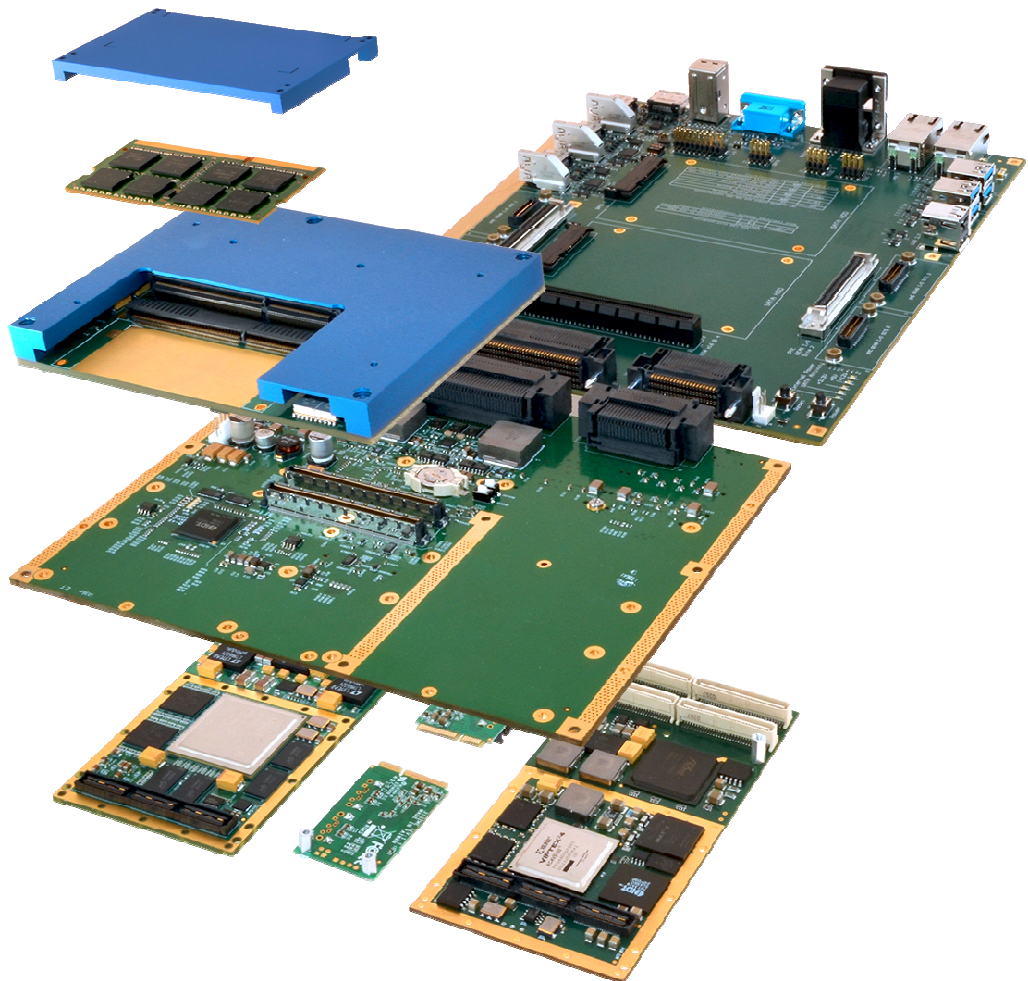
Designed specifically for the MIL-AERO market, Acromag introduces a truly flexible hardware platform that provides you with *off-the-shelf*, advanced technology to satisfy a multitude of project requirements.

Quickly go from development to production using Acromag's line of modular COM Express products.

What Do I Need to Get Started?

While mixing-and-matching an assembly is possible, Acromag cuts out the headaches by offering all of the pieces for a comprehensive package:

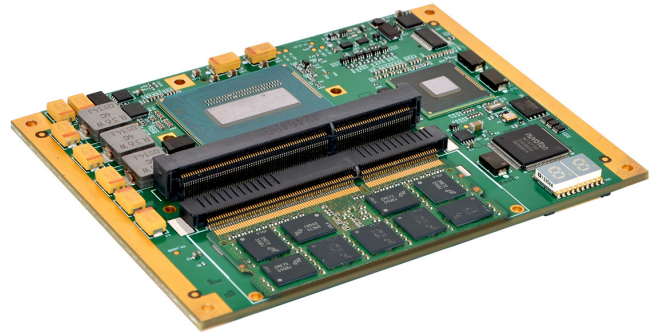
- XCOM-6400 Intel i7/i5 CPU processor board
- ACEX carrier cards
- Production front panels
- Front panel power filter
- Engineering Design Kit for real-world I/O interfacing



How It All Comes Together

1. The Processor : XCOM-6400

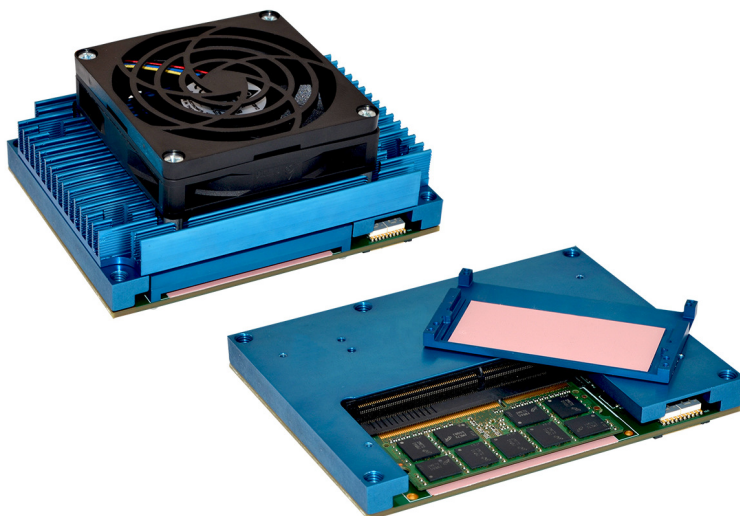
- Type 6 interconnects
- Intel 4th Gen Core i7/i5 CPU
- Intel 8-Series QM87 PCH chipset
- Up to 16GB removable memory
- PEG/General Purpose PCIe x16
- -40 to 85 °C operating temperature



The XCOM-6400 CPU processor module has Type 6 interconnects and features the 4th generation “Haswell” Intel processor. The Core i5 allows for lower power consumption (around 20-40%), while the Core i7 provides higher performance- as much as twice the performance of “Sandy Bridge” (3rd generation).

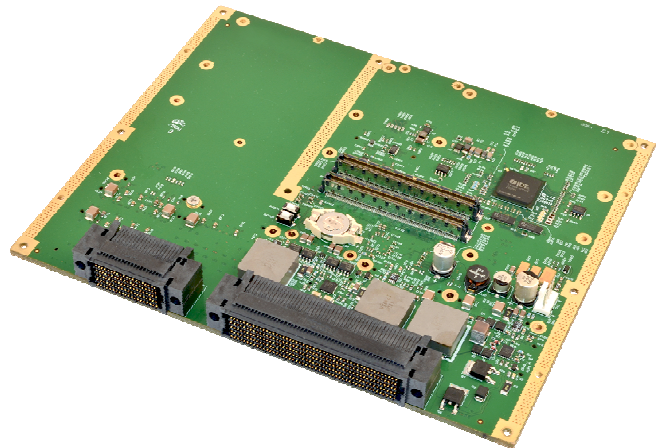
Both processors deliver the many enhanced media, graphic, security, and power capabilities typical for Intel’s 4th generation products. Huge performance improvements were made for floating-point-intensive computations which are critical for digital, signal, and image processing applications – such as radar and sonar. Enhanced graphics enable smoother playback of high-resolution images for digital signage or displays. Improved power efficiency reduces heat and allows smaller, lighter designs with better portability.

The XCOM-6400 also features an innovative SODIMM hold down mechanism which allows up to 16GB of high-speed DDR3L memory to be securely fastened without the limitations of soldered-down memory. Meeting the higher standards of MIL-STD-202G shock and vibration testing, a screw-down latch holds the memory in place without a loss of connection and also serves as a conduction plate to dissipate heat.



2. The Carriers : ACEX4600

- Dual Mini PCIe sites for I/O expansion
- Optional single or double slot PMC/XMC expansion
- Multi-pin SEARAY connectors for real-world interconnection
- Conduction cooling frames and rails available
- On-board DC/DC power supply
- -40 to 85°C operating temperature

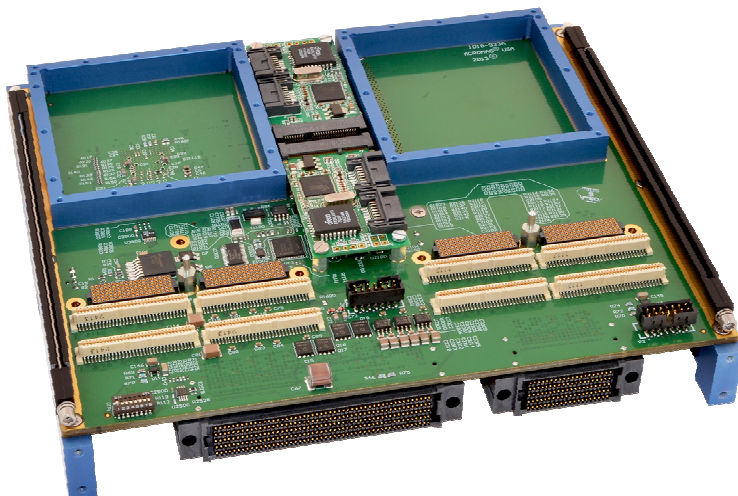


The ACEX4600 Type 6 COM Express carrier cards come in three variations, depending on which features you prefer.

Model	PMC/XMC Expansion Site	Dimensions
ACEX4605	0	125 x 165mm
ACEX4610	1	125 x 165mm
ACEX4620	2	200 x 165mm

All models feature an integrated DC power supply with 10-32V DC input. The boards are ready for conduction cooling and employ a number of key industrialized features that are critical for use in harsh environments.

High-density, high-speed Samtec SEARAY connectors provide all field connections to standard I/O, CPU and rear PMC/XMC I/O. The connector supports either a cable or board-to-board interface. Using these standard carriers will save months of development time and thousands of dollars in engineering costs.



3. PMC/XMC Expansion

Acromag offers several families of XMC or PMC boards, allowing you to modify and customize your system to meet specific application needs and requirements.

- Analog and digital I/O
- FPGA modules
- 10-Gigabit Ethernet network cards
- Multi-purpose I/O cards



4. The Production Front Panels : ACEX-FP

The I/O front panel has MIL-DTL-38999 cylindrical connectors for interfacing to the outside world. Two models are available for use with either the zero/single or the dual PMC/XMC slot carrier. All PMC/XMC rear I/O is routed to the front panel connectors and sealed to IP-67 specifications against dust and immersion.

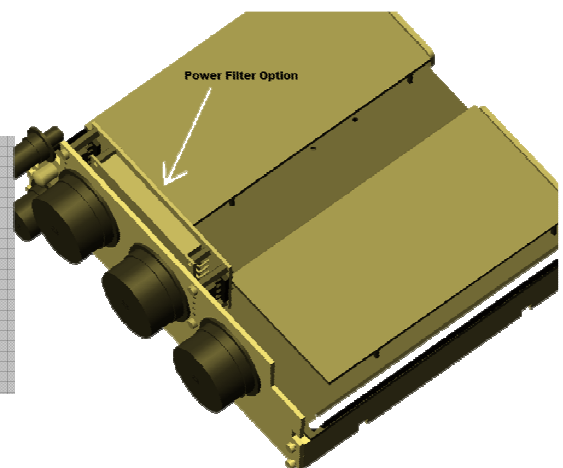


5. The Front Panel Power Filter : ACEX-FP-PF

The front panel power filter interfaces directly to the back of the front I/O card and provides filtering for the incoming power.

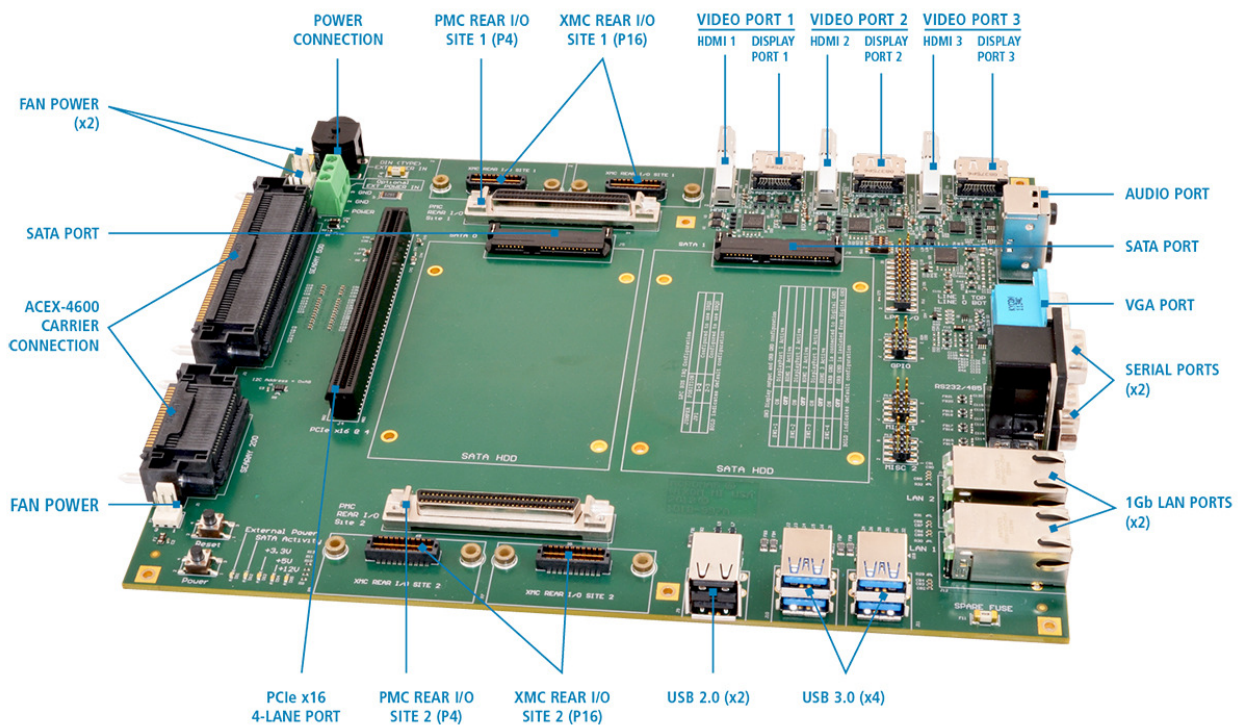
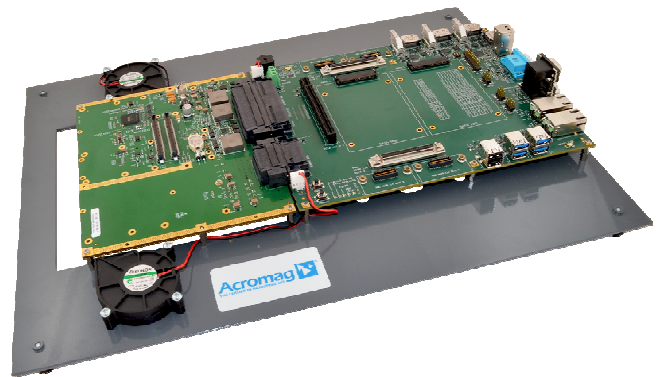
Specification Compliance
MQME series filters (with MQFL converters) are designed to meet:

- MIL-HDBK-704-8 (A through F)
- RTCA/DO-160E Section 16
- MIL-STD-1275B
- DEF-STAN 61-5 (part 6)/5
- MIL-STD-461 (C,D,E)
- RTCA/DO-160E Section 22



6. The Engineering Design Kit : ACEX-4600-EDK

The engineering design kit (EDK) plugs directly into the carrier card allowing access to all signals delivered through the carrier card's SEARAY connector from the EDK board connectors. It provides all of the peripheral I/O connectors from the CPU, I/O expansion modules, and accommodates two SSD devices for program storage.



Interfacing directly to the carrier card, it is the ideal lab-based platform that allows for system development and testing. When prototype development is complete:

- Remove the EDK board
- Install the appropriate front panel via the SEARAY connectors
- Package the production unit into a suitable enclosure (Acromag or customer-developed)
- The unit is now live via the front MIL-DTL-38999 connectors

Ultimately, the COM Express product platform allows you to go quickly from lab development to production without a hassle. Take advantage of an incredibly customizable, off-the-shelf solution that provides cutting-edge technology to meet a variety of project and application requirements.

ABOUT ACROMAG

Acromag has designed and manufactured measurement and control products for more than 50 years. They are an AS9100 and ISO 9001-certified international corporation with a world headquarters near Detroit, Michigan and a global network of sales representatives and distributors. Acromag offers a complete line of embedded computing and embedded I/O products including bus boards, mezzanine modules, wiring accessories, and software. Industries served include military, aerospace, manufacturing, transportation, utilities, and scientific research laboratories.

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