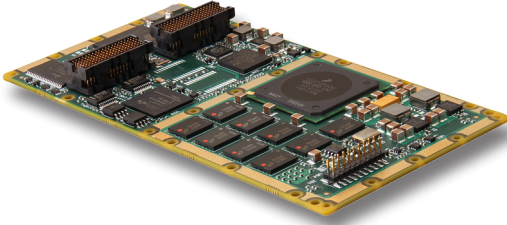


XMC-620

XMC Mezzanine with Cisco Embedded Services Router

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Key Features

- 4 Gigabit Ethernet ports for network connectivity
- Cisco IOS Embedded Services Router with Advanced Enterprise Services feature set
- IPv4/IPv6 routing including OSPF, EIGRP; multicast via MLD Proxy, PIM, IGMP
- Radio-aware routing and MANET for dynamic mobile networks
- IPSec, VPNs with Suite B encryption, DMVPN, GETVPN
- Security policies with ACLs, ZBFW, AAA
- Integrated IP telephony with Cisco CME Express
- Low power: 10W typ, 15W max

Applications

- Connecting systems to IP-based wide-area networks
- Enhancing network security with firewall and intrusion-detection capabilities
- Adding mobile IP networking capabilities to vehicles with multiple data links

Overview

The XMC-620 from Curtiss-Wright Defense Solutions is a small form factor XMC mezzanine module optimized to provide all the power and versatility of Cisco IOS® running as an Embedded Services Router (ESR). Designed for mobile and airborne systems, the XMC-620 extends the power and versatility of an enterprise router to a rugged embedded platform.

With up to 4 GbE ports, the XMC-620 can connect multiple modules or radios to provide LAN and WAN connectivity. The extensive feature set of Cisco IOS enables a wide range of traditional branch router functions including WAN routing, VPN endpoint services, firewall capabilities, and call manager for telephony and unified communications.

Optimized for embedded applications, the XMC-620 also provides advanced routing features for mobile platforms. Mobile Ad-hoc Networking (MANET) enables mobile platforms to create dynamic networks for net-centric operations. Radio-aware routing provides monitoring of link conditions to allow systems to make optimal use of multiple radio connections.

Part of a family of Curtiss-Wright products featuring Cisco ESR technology, the XMC-620 is ideal for SWaP-constrained systems. It features a highly-efficient quad-core Intel® Atom™ CPU to deliver high system performance with low power consumption.

Available in air-cooled and conduction-cooled XMC formats, the XMC-620 is ruggedized to Curtiss-Wright's high standards for reliable performance in harsh environments. Designed to connect to a standard XMC site, it can be installed on a wide range of modules to add powerful network routing and security features to new or existing systems.

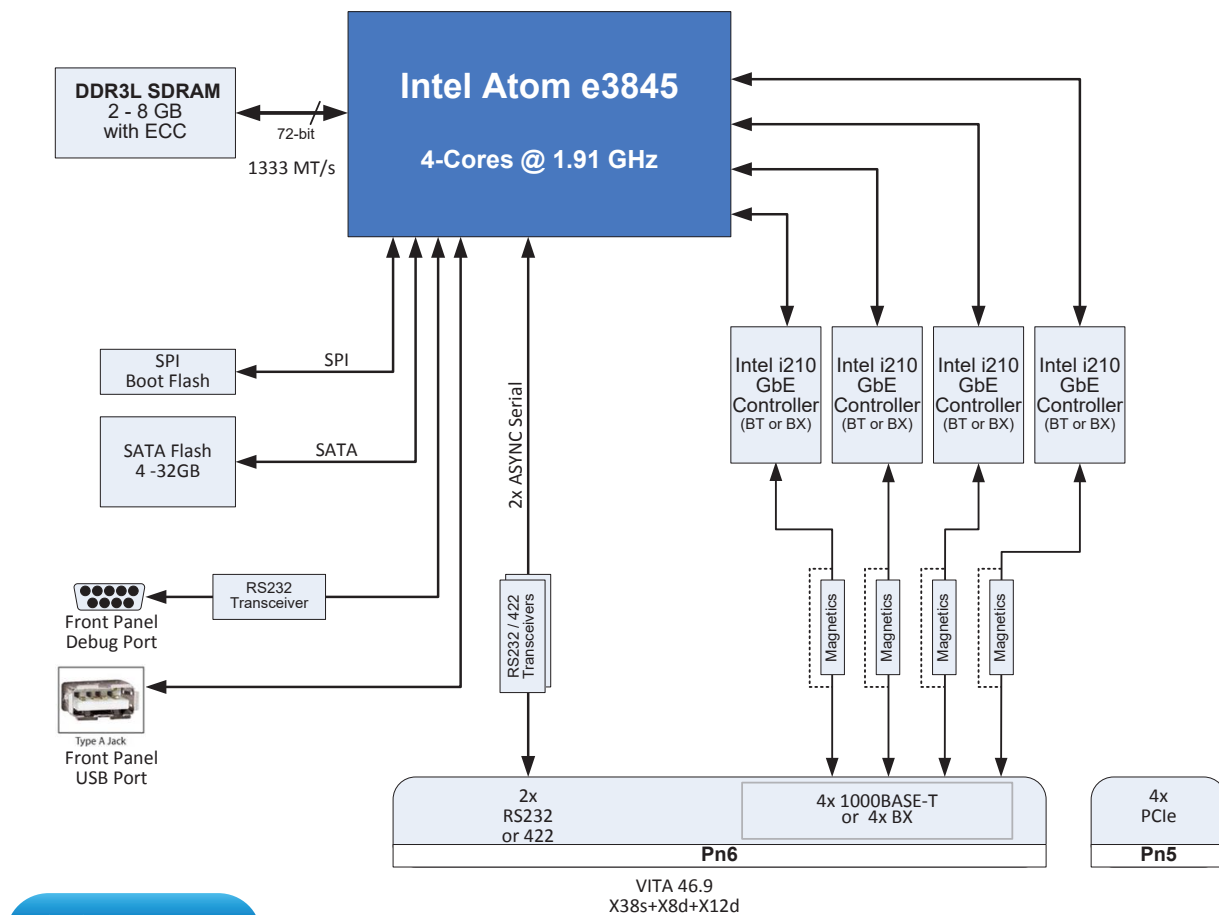


Figure 1: XMC-620 block diagram

Features and Specifications

Form factor

- VITA 42 XMC single-width mezzanine
- Air-cooled: per IEEE 1386.1
- Conduction-cooled: per IEEE 1386.1, VITA 20-199x

Ethernet

- 4 x Gigabit Ethernet ports factory configurable as 1000Base-T or 1000Base-X (SerDes)
- Base-T ports support tri-speed 10/100/1000 Mbps operation with auto negotiation and auto-MDIX

Embedded Services Router

- Cisco ESR 5921 Advanced Enterprise Services
- 50 or 100 Mbps throughput license (other license levels available)

Processor and memory

- Intel Atom quad-core processor
- DDR3L 1333 MT/s with ECC
- SATA NAND flash (SLC)

Power

- +5V or +12V powered from XMC
- Typical power consumption: 12 W

Environmental

- Air-cooled (Level 0)
- Conduction-cooled (Level 200)

Weight

- Air-cooled: 4.6 oz., 131 g
- Conduction-cooled: 5.3 oz., 150 g <preliminary>

Cisco 5921 ESR Features and Benefits

Cisco Mobile Ready Net

Deploy the Cisco 5921 in mission-critical mobile communications to provide:

- Transparent access of mission-critical voice, video, or data information
- Infrastructure-less networking: Reaching beyond the range of a fixed network
- Self-forming temporary ability: Immediate connection with no pre-configuration of peers required, eliminating the need for connectivity to a centralized network

Platform support

Operates on a broad range of commonly available, low-power hardware platforms offering integrators significant flexibility.

Network optimization

The following technologies optimize the utilization of limited bandwidth links, increasing network connectivity and improve user experience:

- IP multiplexing - fully utilize available bandwidth by optimizing transmission packet size
- QoS - help ensure the highest priority data is transmitted when link conditions degrade
- Radio-aware routing - actively monitor link conditions to increase connectivity and reduce packet loss
- Ad-hoc networking - dynamically configure networks to allow authorized nodes to move without requiring manual intervention or pre-configuration

Network security

Protects against malicious attacks and unauthorized access with advanced security technologies such as authentication, identity management, security protocols, secure connectivity, and integrated threat management.

Cisco IOS Embedded Event Manager (EEM)

Cisco IOS EEM is a distributed and customized approach to event detection and recovery offered directly in a Cisco IOS Software device. It offers the ability to monitor events and take informational, corrective, or any desired EEM action when the monitored events occur or when a threshold is reached

Cisco ESR Specifications

Cisco Service Advertisement Framework (SAF)

The Cisco SAF is a dynamic, ready-to-use communications framework for network applications that allows servers and clients to advertise, discover, and select services. Network-based SAF distributes information by taking advantage of IP routing technologies. SAF offers customers greater scalability, availability, and flexibility to deploy and manage applications across the enterprise. It:

- Provides real-time service advertisement, discovery, presence, and selection
- Reduces ongoing operational costs by eliminating manual configuration
- Reduces services deployment time to realize faster ROI
- Improves business continuity, avoiding potentially costly network downtime

Cisco IP Multiplexing

Cisco IP Multiplexing improves bandwidth efficiency over a packets-per-second (pps)-constrained link by using multiplexing schemes to combine small IP packets from a single stream, or multiple streams, into a large packet. It then sends this large packet over the pps-constrained link. Benefits include:

- Increased bandwidth efficiency on pps-constrained lines (for example, satellite)
- Potential savings in processing load for IP security (IPsec)-encrypted traffic
- No manipulation of voice stream; codec quality is maintained
- Application-agnostic implementation
- No need to duplicate dial plans or deal with complex call routing
- Ability to multiplex any IP packet, not just voice over IP (VoIP); other targets include video and other small User Datagram Protocol (UDP) streams

Cisco Unified Communications Manager Express (CME) support

This feature supports up to 20 phones for remote IP telephony on vehicles and for other command-and control communications.

Multicast Listener Discovery (MLD) proxy

MLD proxy enables a device to learn proxy group membership information and simply forward multicast packets based upon that information.

Routing protocols

- Routing Information Protocol (RIP) Versions 1 and 2
- Open Shortest Path First (OSPF)
- Enhanced Interior Gateway Routing Protocol (EIGRP)-IP
- Border Gateway Protocol (BGP)
- Cisco Discovery Protocol
- IP Policy Routing
- IP Multicast Protocol Independent Multicast (PIM) Versions 1 and 2
- Internet Group Management Protocol (IGMP) Versions 1, 2, and 3
- IP Multicast Load Splitting
- Cisco Group Management Protocol (GMP)

Virtual LANs (VLANs)

Up to 32 VLANs supported per router

IPv4

IPv4 support

IPv6

- IPv6 routing and Cisco Express Forwarding switching
- IPv6 QoS
- IPv6 tunneling support
- Cisco IOS Zone-Based Firewall for IPv6 traffic

Encapsulations

- Point-to-Point Protocol (PPP)
- PPP over Ethernet (PPPoE) client and server for Fast Ethernet
- 802.1q VLAN trunking support
- Generic routing encapsulation (GRE)

Radio-aware routing

- Optimizes IP routing over fixed or temporary radio networks
- Factors radio link metrics into route calculations
- Immediately recognizes and adapts to changes in network neighbor status
- Supports Dynamic Link Exchange Protocol (DLEP)
- Supports Router Radio Control Protocol (R2CP)
- Supports RFC 5578 (authored by Cisco)

Mobile ad-hoc networks

- OSPFv3 enhancements for mobile ad-hoc networks

Mobile IP

Mobile IP and Cisco Mobile Networks in Cisco IOS Software:

- Home agent and mobile router redundancy
- Mobile router preferred interfaces
- Mobile router reverse tunneling
- Mobile router asymmetric links
- Mobile router static and dynamic networks
- Static co-located care-of address
- Authentication, authorization, and accounting (AAA) server
- Cisco Mobile Networks Network Address Translation (NAT) Traversal over Mobile IP
- Support for Mobile IP tunnel templates, allowing configuration of IP Multicast and IPsec on Mobile IP tunnels
- Mobile IP foreign agent local routing optimization

Next generation encryption

Next generation encryption support in Cisco IOS Software cryptography, including Suite-B-GCM-128, Suite-B-GCM-256, Suite-B-GMAC-128, and Suite-B-GMAC-256 as described in RFC 4869

Authentication

- Route and router authentication
- Password Authentication Protocol (PAP)
- Challenge Handshake Authentication Protocol (CHAP)
- Microsoft CHAP (MS-CHAP) local password
- IP basic and extended access lists
- Time-based access control lists (ACLs)

Secure connectivity

Secure collaborative communications with Group Encrypted Transport VPN, Dynamic Multipoint VPN (DMVPN), or Enhanced Easy VPN

Integrated threat control

Responds to sophisticated network attacks and threats using Cisco IOS Firewall, Cisco IOS Zone-Based Firewall, Cisco IOS Content Filtering, and Flexible Packet Matching (FPM)

Identity management

Intelligently protecting endpoints using technologies such as AAA and public key infrastructure (PKI).

Security protocols

- IPsec
- SSL/TLS
- 3DES
- AES
- IKE

Traffic management

- QoS
- Generic traffic shaping
- Class-based Ethernet matching and mobile access routing (802.1p class of service [CoS])
- Committed access rate
- Flow-based Weighted Random Early Detection (WRED)
- Class-Based Weighted Fair Queuing (CBWFQ)
- Low Latency Queuing (LLQ)
- Priority Queuing
- Weighted Fair Queuing (WFQ)
- Traffic Policing Resource Reservation Protocol (RSVP)

Management services

- Simple Network Management Protocol (SNMP) Versions 2 and 3
- Telnet
- RADIUS
- TACACS+
- Cisco Service Assurance Agent
- Syslog
- Response Time Reporter
- Trivial File Transfer Protocol (TFTP) client and server
- Dynamic Host Configuration Protocol (DHCP) client and server
- DHCP relay
- Secure Shell (SSH) Protocol Client and Server Version 2.0

Tool Command Language (Tcl) scripts

Tcl script support

Address conservation

- NAT Many-to-One (Port Address Translation [PAT])
- NAT Many-to-Many (Multi-NAT)
- DHCP Client Address Negotiation
- Easy IP Phase I

Ordering Information

The XMC-620 is available in multiple configurations to support different Ethernet configurations and levels of performance. Other configurations may be available; contact your Curtiss-Wright sales representative for more information.

TABLE 1 XMC-620 ordering information

PRODUCT NUMBER	RESOURCES	RUGGEDIZATION	ETHERNET PORTS	LICENSE LEVEL
XMC-620-A014060-E	8 GB DRAM / 32 GB Flash	L0	4 Base-T	100 Mbps
XMC-620-A014060	8 GB DRAM / 32 GB Flash	L0	4 Base-T	100 Mbps
XMC-620-A011050	2 GB / 4 GB	L0	4 Base-T	50 Mbps
XMC-620-A011060	2 GB / 4 GB	L0	4 Base-T	100 Mbps
XMC-620-A011260	2 GB / 4 GB	L0	4 Base-X	100 Mbps
XMC-620-C211050	2 GB / 4 GB	L200	4 Base-T	50 Mbps
XMC-620-C211060	2 GB / 4 GB	L200	4 Base-T	100 Mbps
XMC-620-C211260	2 GB / 4 GB	L200	4 Base-X	100 Mbps