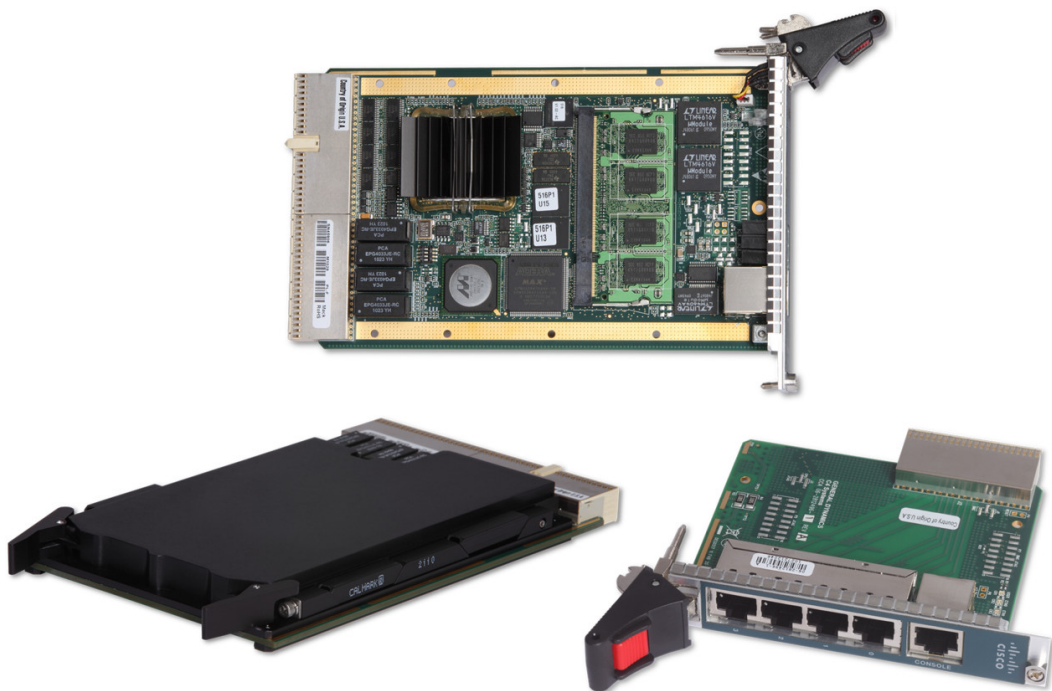# Cisco 5940

Ruggedized 3U CompactPCI Embedded Router

❯ Runs Cisco IOS® software

❯ Four integrated 10/100/1000 Ethernet ports

❯ Cisco Unified Communications Manager Express (CME) support

❯ Cisco Mobile Ready Net, which allows for mobile ad hoc networking and radio-aware routing

❯ Onboard hardware acceleration

❯ Hardware encryption

❯ Integrated threat control using Cisco IOS® Firewall, Cisco IOS® Zone-based Firewall, Cisco IOS® Intrusion Prevention System (IPS), and Cisco IOS® Content Filtering

❯ Identity management using authentication, authorization, and accounting (AAA) and public key infrastructure

❯ 3U CompactPCI form factor

❯ Conduction- or air-cooled

Cisco 5940

The Cisco® 5940 Embedded Services Router (ESR) is optimized for mobile and embedded networks that require IP routing and services. The CompactPCI form factor complemented by Cisco IOS® Software and Cisco Mobile Ready Net capabilities, provide highly secure data, voice, and video communications to stationary and mobile network nodes across wired and wireless links.

The Cisco® 5940 ESR is a high-performance, ruggedized router designed for use in harsh environments and offering reliable operation in extreme temperatures and under shock and vibration conditions typical for mobile applications in rugged terrain. With onboard hardware encryption, the Cisco® 5940 ESR offloads encryption processing from the router to provide highly secure yet scalable video, voice, and data services for mobile and embedded outdoor networks. The router offers high performance, four Gigabit Ethernet interfaces, and a rich Cisco IOS® Software feature set, providing investment protection for customers deploying bandwidth-intensive applications in mobile or embedded networks in public safety, transportation, defense, and energy markets.

The Cisco® 5940 ESR is a 3U CompactPCI (cPCI) router card that is available in both conduction- and air-cooled models. An optional rear transition module (RTM) is available for applications requiring access to the I/O connectors through standard RJ-45 connectors. X-ES provides the Cisco® 5940 ESR integrated into development platforms and deployable systems.

X-ES
Extreme Engineering Solutions

...Always Fast

Memory

- 1 GB DRAM
- 256 MB flash memory

I/O Interfaces

- Four 10/100/1000 routed Gigabit Ethernet ports supporting auto-negotiation
- One console port supporting RS-232 signaling

Hardware Encryption Support

- Onboard hardware encryption processor supporting IP Security (IPsec)
- Secure Sockets Layer with transparent LAN services (SSL/TLS)
- Secure Real-time Transport Protocol (SRTP)
- Triple Digital Encryption Standard (3DES)
- Advanced Encryption Standard (AES)
- Internet Key Exchange (IKE)

Environmental

- Operating temperature range, conduction-cooled -32°C to +85°C
- Operating temperature range, air-cooled -18°C to +52°C
- Non-operating temperature range -51°C to +85°C
- Altitude up to 15,000 ft. (4500 m.)

Routing Protocols

- Routing Information Protocol (RIP)
- RIPv2
- Open Shortest Path First (OSPF)
- Enhanced Interior Gateway Routing Protocol (EIGRP)
- 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 and 2
- IP Multicast Load Splitting
- Cisco® Group Management Protocol (GMP)

VLANs

- Up to 32 VLANs supported per router

IPv4 and IPv6

- IPv6 routing and Cisco Express Forwarding switching
- IPv6 QoS
- IPv6 tunneling support
- 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)
- Additional protocol support

Telnet

- Asynchronous tunneling
- Storage Allocation and Coding (STAC) compression
- Real-time Transport Protocol (RTP) header compression

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
- Dynamic Link Exchange Protocol (DLEP)
- Router Radio Control Protocol (R2CP)
- RFC 5578 (authored by Cisco)

Mobile Ad Hoc Networks

- OSPFv3 enhancements for mobile ad hoc networks

Mobile IP

- 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

Suite-B support

- Suite-B support in IOS® SW crypto including Suite-B-GCM-128, Suite-B-GCM-256, Suite-B-GMAC-128, 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

- Responding to sophisticated network attacks and threats using Cisco IOS® Firewall, Cisco IOS® Zone-based Firewall, Cisco IOS® IPS, Cisco IOS® Content Filtering, and Flexible Packet Matching (FPM)

Identity Management

- Intelligently protecting endpoints using technologies such as authentication, authorization, and accounting (AAA) and public key infrastructure (PKI)

Security Protocols

- IP Security (IPsec)
- Secure Sockets Layer with transparent LAN services (SSL/TLS)
- Secure Real-time Transport Protocol (SRTP)
- Triple Digital Encryption Standard (3DES)
- Advanced Encryption Standard (AES)
- Internet Key Exchange (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 (WFQ)
- Low Latency Queuing (LLQ)
- Priority Queuing
- Weighted Fair Queuing (WFQ)
- Link Fragmentation and Interleaving (LFI)
- Traffic Policing Resource Reservation Protocol (RSVP)

Unified Communications

- Cisco Unified Communications Manager Express with support for up to 48 phones

Management Services

- Simple Network Management Protocol (SNMP) Versions 2 and 3
- Telnet
- Console port
- RADIUS
- TACACS+
- Cisco Service Assurance Agent
- Syslog
- Response Time Reporter
- Network Time Protocol (NTP) Client
- Trivial File Transfer Protocol (TFTP) Client and Server
- Dynamic Host Configuration Protocol (DHCP) Client and Server
- DHCP Relay
- Hot Standby Router Protocol (HSRP)

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

bsi. ISO 9001 Quality Management