

Models 5740 through 5745

6U VME / VITA 31.1, 10/100/1000BT Rugged, Conduction Cooled and Commercial Grade Ethernet Switches



6U VME and cPCI models with Conduction Cooling shown

The 5740-5745 Series of Ethernet switches are built on the latest generation Gigabit switch technology. Combined with an optional PowerPC processor, these switches can offer platform management. The switch core contains a high-speed non blocking four traffic class QoS switch fabric and is designed specifically for embedded systems.

Each port is compliant with 802.3 standard. Switches perform all physical layer functions for 100BT and 1000BT full or half-duplex Ethernet on CAT5 cable and 10BT full or half-duplex on CAT3,4,5 while supporting Auto-MDI/MDIX. The 5740 Series provides the ideal solution for multi-gigabit stand-alone or high-density switching systems.

Key features of the 5740-5745 Series of Ethernet switches:

- Conduction cooled and extended temperature versions available
- Up to 10 Ethernet ports including 1 optical fiber channel (SX or LX)
- 9 port 1000BT conduction cooled version available
- Layer 2 bridging capabilities:
 - Non-blocking with full wire performance
 - 4K MAC addresses
 - Auto learning and aging
 - 802.1 Q support for 4K VLANs or port based VLAN
- Backpressure flow control on half duplex ports and pause frame on full duplex

- Four QoS traffic classes
- MAC authentication, IEEE802.1X compliant
- Plug and play, no configuration required for basic switching
- Flexible management tools:
 - User defined built in test
 - SNMP, HTTP and Telnet
 - Full MIB and RMON counters
 - Port mirroring
 - STP/RSTP
- Led and thermal sensor for easy network monitoring

Configurable version

The unmanaged switch is factory configured by an on-Panel EPROM. However it is lightly manageable and can be configured by a specific EPROM and by way of a PC. In this configuration the PC is connected to the switch by its parallel port. Specific functions are available in this version.

Managed version

The 5740-5745 Series full-managed version can be operated from a browser, PC Visual application, local console or SNMP. The entire system can be easily managed and monitored. Many functions are provided in the managed version: all the PHY and switch parameters configuration, monitoring of all statistical counters, ports monitoring, static MAC address, Multicast and VLAN control, STP/RSTP protocols, MAC based authentication for layer-2 security, extensive list of RMON counters for management in particular for SNMP.

Flexible configurations

Eight and 10 port models are available for standard or rugged environments. 6U form factor allows the integration in VME, cPCI or stand-alone applications. Connections are available from the front or rear.

Functional Specifications

Physical layer

8 / 9 / 10 auto-sensing 10/100/1000Mbps ports
 RJ45 connectors for front panel version or
 J3/P0 connector for rear I/O version
 One optional 1000Base-FX channel (SX or LX)
 On-Line Virtual cable tester for Cable diagnostic
 Compliant with IEEE802.3, IEEE802.3u & IEEE802.3x

Layer 2 MAC

4000 MAC unicast address with automatic ageing, self-learning mechanism, Tag extraction and insertion (802.1p),
 Full-wire speed performance
 Back pressure for half-duplex, IEEE802.3x for full duplex
 Auto-MDI/MDIX crossover and polarity correction
 Port mirroring

VLAN

Full 802.1Q VLAN compliant or Port based VLAN

Security

802.1X MAC authentication

QoS

Four queues per port for traffic classes.

QoS determined by port, 802.1P tagged frame, Diffserv, ToS

IPv4 & IPv6 support, DA or SA MAC address

Fixed priority or weighed

Ingress and Egress Rate Limiting for bandwidth supervision including multicast and broadcast flow control

Switch Management

OnPanel firmware is implemented with Power on Built-In Test, maintenance functions and network (BootP/DHCP) updating functions.

Management software provides a wide range of configuration functions on any port : transmission speed/mode, VLAN, STP parameters, mirroring, etc.

Local temperature monitoring and switch status is provided by the supervision function.

MIB and RMON counters and private information are reachable from SNMP agent, HTTP web-browser via Ethernet.

This Open Application, named **SWITCHWARE**, is carried out by a PPC processor module running under LINUX. Based on a Power-Quic this card implements 32MB SDRAM, 8MB Flash EPROM and several communication ports.

Redundancy capabilities

STP IEEE 802.1d provides redundant link support.

Rapid STP capability for minimizing STP convergence.

Front panel LEDs

Power supply and Switch status

Switched ports : activity & link

System interface

5VDC or 3.3VDC Power Supply only

Power supply

8 GE port base unmanaged Panel P_{typ}=10 watts

10 GE ports : P_{typ}=12.5 watts

Management PPC function : P_{typ} = 0.8 watt

cPCI model : through J1 connector (5 or 3.3 VDC)

VME model : through P1 connector (5VDC)

Standard Conformance

Emissions

EN55022 Class A

Immunity

CEI 6000-4-2 (ESD), 6000-4-3 (Electric field),

6000-4-4 (Burst), 6000-4-5 (Surge), 6000-4-6,

Security

EN60950

MTBF

TBD

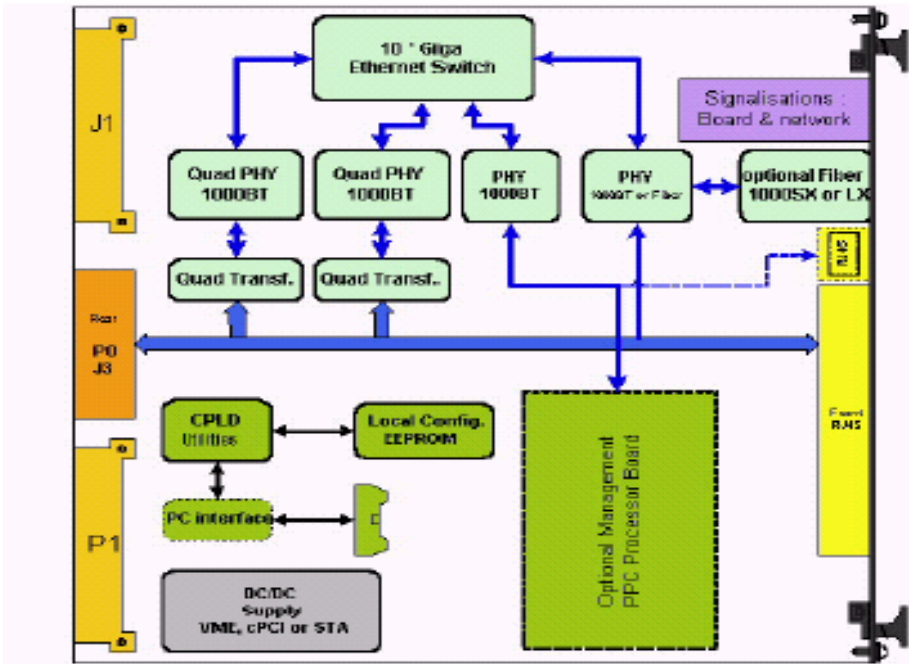
Extended Environment with Conformal Coating

Operating Temperature -20°C to 65°C

Recommended Airflow 0.8m/s

Humidity 5% to 95% HR non condensing

Storage Temperature -45°C to 85°C
Sinusoidal Vibration 2G [20..2000]Hz
Random Vibration 0.002g²/Hz [10..2000]Hz
Shock 1/2 Sin 11ms 20G



574x Block Diagram

Ordering Information:

All Extended Grade, Rugged Grade and Conduction Cooled boards below are conformal coated
S= standard grade (0-+55C), X= ext grade (-20-+65C), R = rugged grade (-40 - +75C), cc = cond cooled
L= long wave laser optics

| | | |
|--------------------------|---|----------|
| | LM = LightManaged switch FM = Full Managed switch (FP) = Front Panel - (R) = Rear I/O | |
| VITA 31.1 or Stand-alone | Front Panel connections | Temp |
| 5740-S | 10 ports_LM : 9*10/100/1000BT (FP) + 1*10/100/1000BT (R) | Standard |
| 5740-X | 10 ports_LM : 9*10/100/1000BT (FP) + 1*10/100/1000BT (R) | Extended |
| 5741-S | 10 ports_LM : 9*10/100/1000BT (FP) + 1*1000 SX (FP) | Standard |
| 5741-X | 10 ports_LM : 9*10/100/1000BT (FP) + 1*1000 SX (FP) | Extended |
| 5742-S | 9 ports_FM : 8*10/100/1000BT (FP) + 1*10/100/1000BT (R) | Standard |
| 5742-X | 9 ports_FM : 8*10/100/1000BT (FP) + 1*10/100/1000BT (R) | Extended |

| | | |
|----------|--|----------|
| 5743-S | 9 ports_FM : 8*10/100/1000BT (FP) + 1*1000 SX (FP) | Standard |
| 5743-X | 9 ports_FM : 8*10/100/1000BT (FP) + 1*1000 SX (FP) | Extended |
| 5743-S-L | 9 ports_FM : 8*10/100/1000BT (FP) + 1*1000 SX (FP) | Standard |

| VITA 31.1 or Stand-alone | Rear I/O connections | Temp |
|--------------------------|--|-------------------|
| 5744-S | 10 ports_LM : 9*10/100/1000BT (R) 1*10/100/1000BT (FP) | Standard |
| 5744-X | 10 ports_LM : 9*10/100/1000BT (R) 1*10/100/1000BT (FP) | Extended |
| 5745-S | 9 ports_FM : 9*10/100/1000BT (R) | Standard |
| 5745-X | 9 ports_FM : 9*10/100/1000BT (R) | Extended |
| 5745-CC | 9 ports_FM : 9*10/100/1000BT (R) | Conduction cooled |

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