Second generation 10G ATCA Switch with 320 Gbps non-blocking switching bandwidth ideal for 4G LTE, 3G and Data Center Networks

» Support for 14x 10GbE nodes and one redundant hub meeting NEBS and ETSI standards

» Centralized system management with optional functionality based on the COMexpress form factor

» Separate switch silicon for Base and Fabric interface

» 4x 10GbE Front Fabric Uplinks; 4x 10GbE Front Base Uplinks

» 1x GE Mgmt. and 2x Serial Console

» Support for Synchronous Ethernet on RTM

» Optional integration Wind River Hypervisor

Validated with OM9141-10G Open Modular Core Platform
### Technical Information

#### 10G Fabric Interface

| Broadcom StrataXGS®8E Metro Ethernet Switch Architecture |

- Broadcom BCM56842 high performance Ethernet Multilayer Switch:
  - 320Gbps Switching Capacity;
  - Support of up to 14 Fabric IF 10GBase-BX4 (XAUI) or 1GBase-BX;
  - Support one port 10G Hub interlink to backplane at 10GBase-BX4 (XAUI) or 1GBase-BX.

- Support of 4 10G interfaces to RTM
- Support of 4 1G/10G SFP+ front uplinks with 10GBase-SR/LR/LRM/ direct attach copper cables
- SFP+ monitoring
- SyncE and BroadSync(tm) interface connection to FPGA for future usage

#### Base Interface

| Broadcom BCM56334 24-Port GE Ethernet Multilayer Switch with 4 10GbE Uplinks: |

- 14 Base Interface ports running at 10/100/1000Base-T/TX/T;
- 4 1G/10G SFP+ front uplinks with 10GBase-SR/LR/LRM/ direct attach copper cables
- 3 RTM uplinks running at 10/100/1000Base-T/TX/T (SGMII) or 1000Base-x (fiber)
- SFP/SFP+ monitoring
- One port configurable either as Hub interlink via Update Channel or IPMC link for IPMI/Serial over LAN
- Hub interlink running at 1000Base-BX
- ShMC A/B connect running at 10/100Base-T/TX
- 4 1G/10G SFP+ front uplinks with 10GBase-SR/LR/LRM/ direct attach copper cables
- One port connected to Unit Computer running at 1000Base-BX
- One port connected to System Manager running at 10000Base-BX
- Dual-core Freescale P2020 1000MHz processor
- 1GB DDR3 SODIMM; 2x 128MByte NOR FLASH with dual Image Support
- Windriver Hypervisor running Windriver Linux as guest OSs on each core

#### Unit Computer and System Memory

- Broadcom FASTPATH®
- Base package including switching, Quality of Service and Management Switching protocols and functions including Ethernet Multicast (GVRP, GARP, RSTP, LAG, IGMP Snooping, DiffServ, ACL ...)
- IPv4 unicast and multicast routing:
  - unicast forwarding protocols & functions (ARP, OSPF, VRRP, RIP, ...);
  - multicast forwarding protocols & functions (PIM-DM, PIM-SM, DVMRP, IGMP ...).
- IPv6 unicast and multicast routing: IPv6 unicast forwarding protocols and functions (discovery, OSPFv3, MLD, 6to4/4to6 tunneling)
- Switching protocol support:
  - Virtual LAN’s per IEEE 802.10-2005;
  - Tag based IEEE 802.1p frame priority;
  - Rapid Spanning Protocol (RSTP);
  - GARP VLAN Registration Protocol (GVRP);
  - Multiple Spanning Tree Protocol (MSTP);
  - Group addresses according to IEEE 802.1;
  - Flow Control;
  - Support for GMRP;
  - Link Layer Discovery Protocol (LLDP);
  - Link Aggregation (LAG)
  - Link Aggregation Control Protocol (LACP);
- o IGMPv3 snooping;
- o Dynamic Host Configuration Protocol (DHCP);
- o Telnet, TFTP, DHCP, SSH, SFTP, ICMP-echo (ping);
- o IPv4/IPv6:
- o Address Resolution Protocol (ARP);
- o Transport Layer Transfer Protocol (TFTP);
- o Reverse Address Resolution Protocol (RAARP);
- o Secure Shell (SSH);
- o Simple Network Management Protocol (SNMP);
- o Simple Network Management Protocol (SNMPv3);
- o Internet Group Management Protocol (IGMP),

#### Kontron Software

- Kontron Software Feature Extensions

- Ethernet Switching:
  - o Meshed multicast, multicast and RSTP interoperability, same port bridging, link aggregation, LLDP, lossless Ethernet
- IP Routing:
  - o IPinIP tunneling, automatic tunnel failover, multicast
- Management Enhancements:
  - o Access control Lists, monitoring, SNMP, provisioning, KEX control-API, diagnostics, reliable field upgrades, location based DHCP server, file services, watchdog, real time clock.
- Enhanced Optical/Copper module support:
  - o XFP, SFP+, SFP, auto detection and selection
- Wind River Hypervisor support for FASTPATH BSP

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**www.kontron.com**
## Technical Information

### I/O Interfaces
- Front: 1 SFP+ cage to support multi-rate fiber SFP+ modules
- Front: RJ45 for RS232 access to Processor

### IPMI
- PICMG 3.0 / PICMG 3.1 / HPM.1 / IPMI 2.0 compliant
- 10L/50L support
- Temperature, Current and Voltage Sensors

### Support
- **RTM8940 Rear Transition Module (RTM)**
  - Up to 80Gbps uplink capability on Fabric Interface:
    - 2x QSFP configured as (2x 40G; AT8940 only) or 8x 10G uplinks using 2 active copper cables;
    - 1x QSFP configured as (1x 40G; AT8940 only) or 4x 10G and 4x SFP+ uplinks;
    - Telco clocking is standard;
    - Option to remove the QSFP uplinks and/or Telco clocking is available on demand.
  - Support for 2x SFP 1 GbE uplinks on Base Interface:
    - 1000Base-SX/LX Optical Modules;
    - 10/100/1000Base-T Copper Module.
- **Master Clock Generator with Stratum 3 accuracy and SyncE support:**
  - 2x ETSI T3 E1/T1 BITS input/outputs;
  - 2x ETSI T4 E1/T1 Upstream/Downstream Chassis Clock Support;
  - ATCA Synchronisation Clock Support CLK1 A/B, CLK2 A/B, CLK3 A/B;
  - Clock Synchronisation to MCG of redundant HUB/RTM.

### System Manager
- Support for basic and micro COM Express ETX Modules with Type 1 connector, according COMExpress O R1.0
- Management connection to System Manager via RS232 front RJ45, or 10/100/1000Base-T front RJ45
- Front panel USB port
- Support of ETX modules up to 30W
- Additional Ethernet Connection to Base IF and redundant HUB
- Support on-board for JEDEC SerialATA MO-297 SSD
- Support for RTM SATA applications
- Support on-board of up to 2 eUSB Flash Modules

### Power
- ATCA compliant Power Input System
- Total power is below 220 W
### Technical Information

#### Environmental

**Temperature**
- Operating: 0-55°C/32-131°F with 30CFM airflow
- Storage and Transit: -40 to +70°C/-40 to 158°F

**Humidity**
- Operating: 15% to 90% @ 65°C/149°F non-condensing
- Storage and Transit: 5% to 95% @ 45°C/113°F non-condensing

**Altitude**
- Operating: 4,000 m / 13,123 ft
- Storage and Transit: 15,000 m / 49,212 ft

**Shock**
- Operating: 3G each axis
- Storage and Transit: 18G each axis

**Vibration**
- Operating: 5-200Hz, 0.2G, each axis
- Storage and Transit: 5Hz to 20Hz @ 1 m/s^2 (0.01g2 /Hz) (flat)
- 20Hz to 200Hz @ -3dB/oct (slope down)

#### Reliability
- MTBF to meet or exceed approximately 280,000 hours
- Whole board protected by active breaker
- USB voltage protected by an active breakers

#### Safety / EMC

Meet or exceed:
- Safety: UL 60950-1; CSA C22.2 No.60950-1-03; EN 60950-1:2001; IEC60950-1;
- EMC/EMI: FCC 47 CFR Part 15, Class B; CE Mark to EN55022/EN55024/EN300386

#### Warranty
- Two years limited warranty

* Designed to meet or exceed.