

# **MicroRAPTOR® (iMR320)**

## **Guideform Specifications**

The iS5Com's iMR320 *MicroRAPTOR*® shall meet the following specifications:

### **Hardware**

**Layer 2/Layer 3 switching ports:** The device shall support 8 or 16 10/100/1000 MB Ethernet ports. The first 8 shall be copper with RJ45 connectors, the 2nd 8 may also be copper RJ45, or SFPs.

**HSR/PRP ports:** The device shall support 2 Redboxes or 1 Quadbox.

**Serial ports:** The device shall optionally support 8 serial ports with RJ45 connectors, or 4 ports with DB9 connectors. All serial ports may be configured for RS232, RS422, or RS485.

**Application processing module:** The device shall optionally support one application processing module. This module shall have a minimum 1.6GHz 4 core Intel architecture processor, with up to 8GB RAM and up to 2 TB Storage. Application processing module must have minimum 2 ethernet connections into the switch, and one terminated externally.

**Wide temperature range:** The device shall operate over a range of -40°C to +85°C (-40°F to 185°F).

**Robust industrial design:** The device shall meet the requirements of IEC 61850-2 and IEEE 1613.

**Alarm contact:** The device shall have an alarm contact rated at 1A @ 24VDC.

**Serial Console Port:** The device shall have an RS-232 console port with an RJ45 interface.

**USB port:** The device shall have a USB 2.0 for software updates, downloading syslog files and configuration backup/restore.

**System Resource Monitoring:** The device shall monitor temperature and CPU speed locally and remotely via SNMP

**Power supply options:** The device shall support the following power inputs: 10 – 36 VDC, 36 – 72 VDC, 88 – 300 VDC, and 100 – 240 VAC

**Redundant power supplies:** The device shall support redundant power supplies

**Warranty:** The device shall have a materials and workmanship warranty of 5 years, which may optionally be extended to 10 years.

### **Layer 2 Functionality**

**MAC Address table:** Supports up to 16K addresses.

Switch shall support store and forward operation with switching latency of no more than 7 µs

**Switching plane bandwidth:** Minimum of 128 Gbps.

**Virtual Local Area Networks (VLANs):** The device shall support up to 4095 IEEE 802.1Q-2005 VLAN IDs. It shall support VLAN-aware bridging (Port Based VLAN, Protocol based VLAN).

**Rapid Spanning Tree Protocol (RSTP):** The device shall support RSTP (IEEE 802.1D, 2004) /MSTP/PVRST+. BPDU load/ attack prevention mechanism, verbose logs on the screen up for debugging level.

**Jumbo Frame:** The device shall support jumbo frames up to 9216 bytes.

**Port Based Authentication:** The device shall support 802.1x authentication.

**Quality of Service:** The device shall support QoS (Classification based on ACL and Priority Map Table, Traffic Shaping, Scheduling and Queueing). It shall support pre-Marking Support for IP, DSCP, Metering TRTCM, Frames for IP, DSCP, Metering and Priority Marking of Frames for IP, DSCP, Egress Port Scheduler and Shaper.

**Link Layer Discovery Protocol (LLDP):** The device shall support IEEE 802.1 AB-2009.

**Link aggregation:** The device shall support Link Aggregation using LACP.

## **Layer 3 Functionality**

**Unicast Routing:** The device shall support unicast routing with IPv4 (Static, RIPv1/v2, OSPF), and support Route redistribution between protocols.

**Virtual Router Redundancy Protocol:** The device shall support VRRP v2 and v3.

**BGP:** The device shall support BGP

**Internet Group Management Protocol:** The device shall support IGMP v1, v2, and v3 and IPv4 multicast Routing (Protocol Independent Multicast- Sparse Mode PIM-SM).

## **Management and Administration**

**Command Line Interface (CLI):** The device shall support Console, Telnet, and SSH.

**WebUI:** The device shall support HTTP and HTTPS / SSL.

**Configuration Save and Restore:** The device shall support configuration save and restore using MIB OIDs and text file.

**Software and configuration:** The device shall support software and configuration upgrades through TFTP and SFTP.

**Multiple User levels:** The device shall support at least 3 user levels (Admin, Tech, Guest).

**Authentication:** The device shall support RADIUS and TACACS+ Authentication

## **Other functionality**

**IEEE 1588 Precision Timing Protocol (PTP):** The device shall support IEEE 1588 precision timing protocol v2, with power profile v2, in transparent clock mode, on all Ethernet ports.

**Syslog:** The device shall have a syslog client to record and syslog relay to forward syslog messages.

**SNMP:** The device shall support SNMP (v1, v2c, and v3) agent and MIB support.

**Simple Network Time Protocol (SNTP):** The device shall support SNTP.

**RMON:** The device shall support RMONv1.

**Port Mirroring:** The device shall support mirroring of traffic to a designated target port.

**IGMP snooping:** The device shall support IGMP v1, v2, v3 snooping – explicit Host Tracking and Fast Leave, Multicast Statistics (for control plane messages).

**Dynamic Host Configuration Protocol (DHCP):** The device shall support DHCP (Client, Server & Relay) for IPv4, with support for option 82.

**ACLs (Access Control Lists) for Traffic Filtering:** The device shall support L2 ACL and L3 ACL.

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