OctaveRG800

Network Processor-Based 8-Port NGcN Switch

OctaveRG800 Specifications

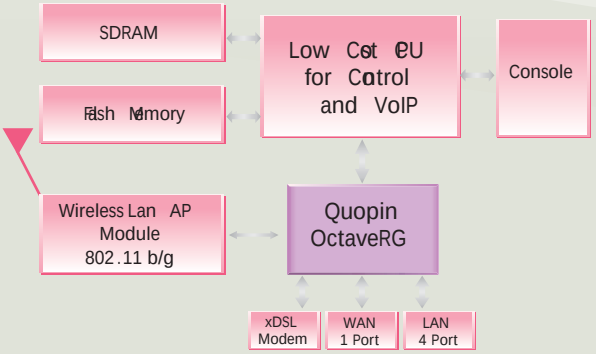
- 8 half and full-duplex 10/100 Mbps ports
- Wire-speed Layer 2/3 switching
- Wire-speed Layer 4 policy based switching
- 120-byte packet header lookup> all field remarkable
- Address&policy lookup table embedded:up to 4K entries
- Packet buffer embedded
- 4K VLAN support
- IEEE 802.1Q support based on port, MAC, tag, subnet protocol
- Stacked VLAN (Q-in-Q)
- IGMP Snooping support
- Broadcast storm filtering
- Link Aggregation function -IEEE 802.3ad
- Management support: SNMP, RMON, SMON
- Flow control (IEEE 802.3x pause function)
- Loop resolution –STP (Spanning Tree Protocol), Rapid STP (802.1W), Per VLAN STP
- IPv6 switch ready due to 120-bytes header lookup

L2/3/4 Performance, NAT, NApT

- Wire-speed Layer 2/3 switching on all ports
- Wire-speed NAT/NApT
- Wire-speed session detection and access control

Filtering

- MAC filtering, VLAN filtering, IP filtering
- TCP/UDP Port filtering, DHCP snoop/ARP snoop filtering
- NetBIOS, NetBEUI filtering, NBT (NetBIOS over TCP) filtering
- IPX socket number filtering
- Filtering rules can be added if necessary

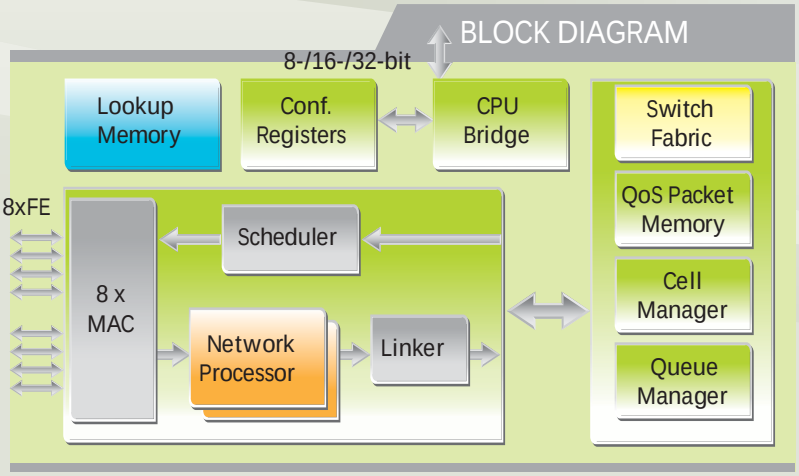


xDSL+ NP Switch + Access Point + VoIP

QoS All Features Covered

- ACL (access control list)
  L1: Physical Port
  L2: Destination MAC address
  Source MAC address
  Ethertype COS
  VLAN ID
  L3: Source IP address
  Destination IP address
  TOS
  Protocol ID
  L4: Source port number
  Destination port number
  NetBIOS/NetBEUI, value/mask, range
  unicast MAC, unknown MAC, multicast MAC, broadcast MAC, unicast IP packet, multicast IP packet
- ACL Output
  Remarking, VLAN ID insert, filtering, port redirection, port mirroring, CPU redirection, CPU mirroring
- Prioritization
  L2 CoS, L3 IPv4 TOS, L3 IPv4 DSCP, L3 IPv4 IP-precedence packet type (unicast/multicast), IPv6 TC
- Policing
  Granularity, token bucket, priority based multi-stage policing, operation position, port based policing, flow based policing
- Shaping
  Buffering max. size, port based shaping, class based shaping
- Scheduling
  SPQ, WFQ, WRR, DWRR
- Rate control support

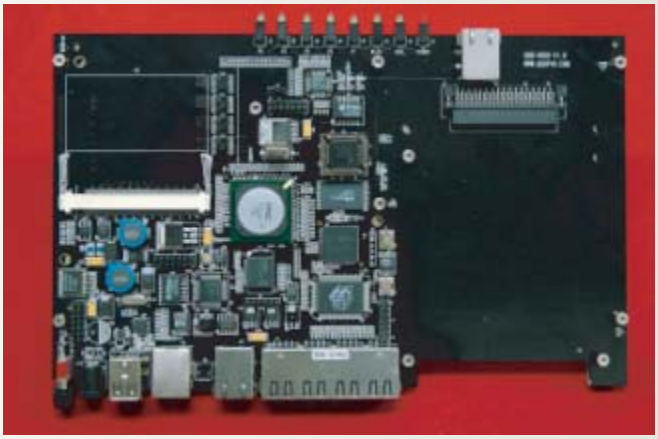
BLOCK DIAGRAM



ORG800

Network Processor-Based 8-Port NGcN Switch

RGW Reference Board

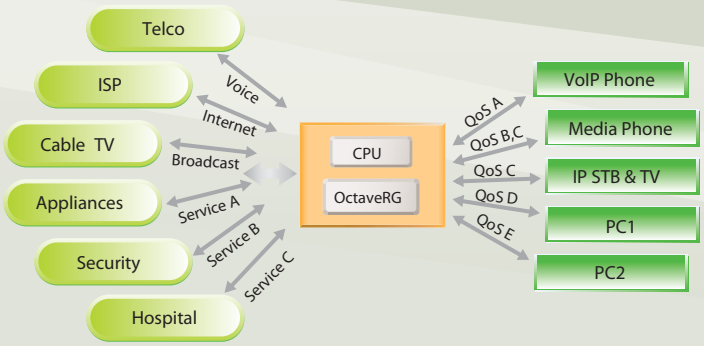


Switch + Access Point + xDSL

Applications

- RGW (residential gateway), or IAD (Internet access device)
- AP (access point) with perfect NAT/NApT and QoS
- Switch/router for SME: SOHO switch/router, IP sharer
- Metro Ethernet switch: MPLS LES (Label Edge Switch)
- FTTH EPON switch: ONU/ONT
- IPv6 NGcN switch

Home/SOHO/SME Gateway Switch for IP Convergence Network



QoS Enhancement Features

- Hardwire 128 classification/ACL rules for 12-tuple
  1. physical port
  2. des. MAC
  3. src. MAC
  4. COS
  5. VLAN ID
  6. Ethernet type
  7. TOS
  8. protocol ID
  9. src. IP
  10. des. IP
  11. src. Port
  12. des. Port
- (128 x n) classification/ACL rules defined by Packet Processor after hardwire classification
- Minute per-flow bandwidth control: Flow-level bandwidth usage measured by a Packet Processor Flows are defined for any combination of 12-tuple
- VOQs(virtual output queues): Each flow's service policy is determined respectively in reference to output queue status.
- Priority remarking based on:
  - User priority bits of VLAN tag
  - Ether Type field value
  - TOS field value of IPv4 header
  - Flow label field value of IPv6 header

  Prioritized packets assigned to 4 priority queues.
- Mixed scheduler of strict priority queuing and deficit weighted round robin (DWRR) with 4-level priority

Interfaces

- 8 x SMII/S3MII or 4MII + 4 x SMII/S3MII
- 8-/16-/32-bit local bus for CPU interface

Device Specifications

Package	289-FGBA
Fabrication	CMOS 0.18 µ
Power Supply	1.8V Core, 3.3V I /O
Power Dissipation	1.6 W
System Clock	125 MHz

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