

ORG2G600

Network Processor-Based < 2xGE + 6xFE > Switch

ORG2G600 Specifications

- 8 half and full-duplex 10/100 Mbps ports
- 2 Gigabit Ethernet ports (option, full duplex)
- MDC/MDIO GMII/MII 2 ports
- Wire-speed Layer 2/3 switching
- Wire-speed Layer 4 policy based switching
- 60-byte packet header lookup > all field remarkable
- Address & policy lookup table embedded
- 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 switching, tunneling

L2/3/4 Performance, NAT, NApT

- Wire-speed Layer 2/3 switching on all ports
- Wire-speed NAT/NApT on FE ports for any packet size and on GE ports from 128B packets
- Wire-speed session detection and access control

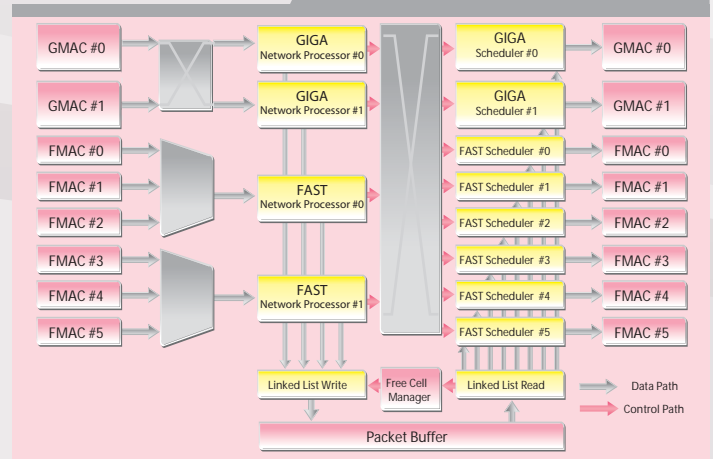
Filtering

- 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

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-granularity 100Kbps for FE, 1Mbps for GE
- Buffering max. size, port based shaping, class based shaping
- Bandwidth limiting – token bucket
 - : min. 1ms, max. 1s
- Scheduling - SPQ, DWRR and combination
- Rate control support

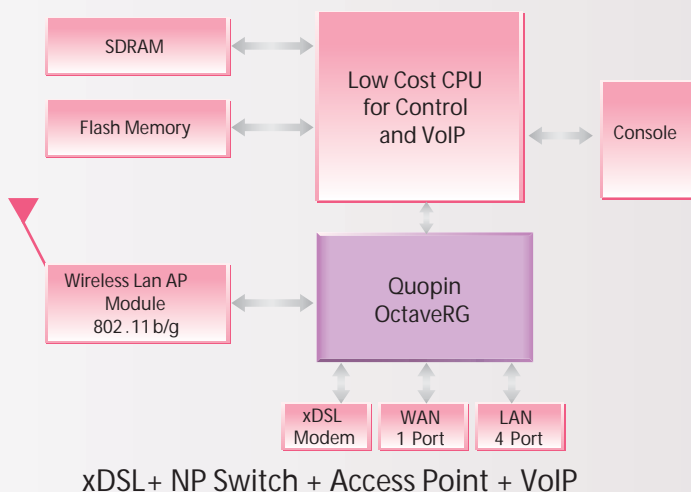
ORG2G600 BLOCK DIAGRAM



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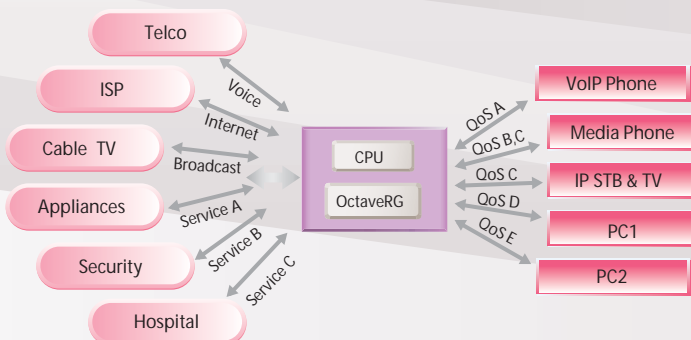
NP-Based IAD System Architecture



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 switch/router, NGcN switch

Home/SOHO/SME Gateway Switch for IP Convergence Network



OoS 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

- 2 x MII + 6 x S3MII or 8 x S3MII : 1 MII for WAN, 1 MII for CPU, 6 x S3MII for LAN
- 2 x GMII + 6 x S3MII or 2 x GMII + 1 x MII + 5 x S3MII
- MDC/MDIO: 2 x GMII/MII copper/optic scan mode support
- 8-/16-/32-bit local bus for CPU interface

Device Specifications

- Package: 289-FGPA
- Fabrication: CMOS 0.18 μ
- Power Supply: 1.8V Core, 3.3V I/O
- Power Dissipation: TBD
- System Clock: 125 MHz