



CTC6048 Advanced Product Brief

Product Overview

CTC6048 is a high feature, high performance IP/Ethernet switching processor designed to fulfill next generation Metro Ethernet network requirements. CTC6048 integrates Layer2 to Layer4 packet processing engine, advanced traffic manager and fabric interface.

Targeting Metro Ethernet applications, CTC6048 supports hardware-based IPv4 and IPv6 dual stack routing, MPLS switching, various IP/MPLS tunneling, L2/L3 VPN and native high performance multicast.

CTC6048 provides 150Mpps packet processing capability and H-QoS capabilities. CTC6048 supports bandwidth provisioning functions with advanced flow classifier, a highly flexible 80Gbps Fabric Interface, and optional memory interfaces to external memory for extended capabilities.

Supported operation modes:

Pizza-box: 48x1G+4x10G, 32x1G+6x10G,
16x1G+8x10G, 48x2.5G

Line card: 48x1G+fabric,
32x1G+2x10G+fabric, 8x10G+fabric

Features

Ethernet Switching

- Support 16KB jumbo frame
- Rate limiting of broadcast, unknown multicast, and unknown unicast packets
- Up to 128 link aggregation groups, each up to 16 members
- STP/MSTP/RSTP support
- Up to 64K L2 multicast groups

Advanced Carrier Ethernet

- Support Ethernet based MEF9 & MEF14 compliant services such as E-LINE, E-LAN, E-TREE
- Double VLAN manipulation (VLAN translation, VLAN switching, QinQ, etc)
- Support PBB/PBT
- Support MPLS-TP

Complete IPv4 and IPv6 Processing

- Advanced IPv4/IPv6 routing with ECMP and PBR support
- IP and GRE tunneling
- IPv6 tunneling (configured Tunnel, 6to4 Tunnel, ISATAP)
- Unicast Reverse Path Forwarding.
- IP multicast support, up to 64K multicast groups, replication up to 256 ports each with 4K VLAN

MPLS and MPLS-TP

- Wire speed MPLS switching with up to 3 label pop and push operations
- Up to 512K MPLS labels
- E-LSP and L-LSP
- Support Pipe Model LSP and Uniform Model LSP
- Martini encapsulation for VPWS, VPLS and H-VPLS, up to 64K VFI
- Support L3VPN and MVPN, up to 64K VRFs
- Support connection oriented LSP/SS-PW/MS-PW, Tandem connections and multi-level operation
- Support MPLS-TP Generic Alert Label (GAL) and Generic Associated Channel (G-ACh)

Integrated Traffic Manager

- ACL based flow classification
- Up to 64K flow policing (SrTCM, TrTCM)
- Hierarchical policing, up to 4 policing operations per packet, ingress and egress with flow and port/service policing
- 2K queue, flexible queue mapping, configurable WRED profiles
- Hierarchical QoS, 3 stage shaping, WDRR/WRR/SP scheduling

OAM & APS

- Support Ethernet OAM, MPLS OAM, PBB/PBT OAM and T-MPLS OAM
- Support up to 8K EVCs
- Support APS switch-over less than 50ms
- BFD offload for MPLS-TP OAM





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Security

- Limit MAC address number per port/VLAN
- 802.1x: Port-based/MAC-based access control
- Private VLAN support
- Source IP guard Support
- IP+MAC+VLAN+Port binding
- Support both ingress and egress ACL
- Support CPU traffic protection

Statistics and Counters

- Up to 64K per policer statistics
- Up to 64K ingress and egress flow statistics

- MPLS label and EXP based statistics
- Per queue drop and de-queue statistics

Timing Synchronization

- Support IEEE 1588v2 and Sync Ethernet

Integrated Fabric Interface

- Loss-less non-blocking cell based fabric interface with 128 VoQs

Physical Specification

- Package: FCPBGA-1520
- Process: IBM 65nm

Example Applications

Fixed Configuration Box

As shown in Figure 1, one CTC6048 can be used to build a pizza box which has 48 1GE downlink ports and four 10GE uplink ports connected to core layer.

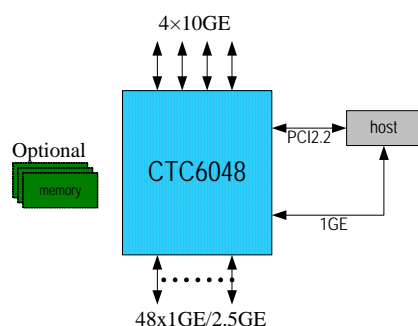


Figure 1 Fixed Configuration Box

CTC6048 Functional Block

CTC6048 Functional Block is shown in Figure 3.

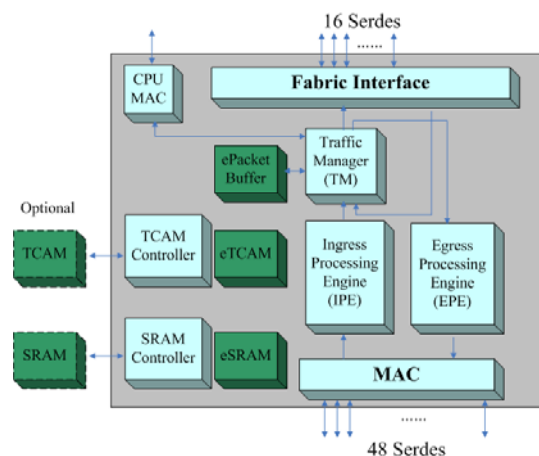


Figure 3 CTC6048 Functional Block Diagram

CTC6048 as a line Card

Figure 2 shows an example of CTC6048 as line card. These line cards can have different configurations.

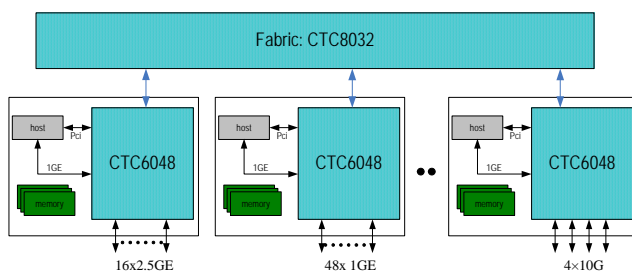


Figure 2 CTC6048 as line card



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