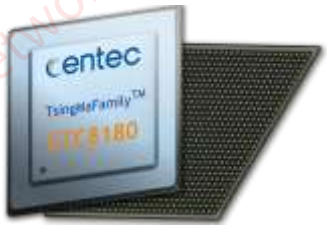
Cloud era Extensive Edge Computing Switch Silicon CTC8180



- **Advanced 5G Carrier Grade Technology**

CTC8180 is the first propose-built switch chip with FlexE for 5G fronthaul/midhaul/backhaul applications. The device offers leading performance of packet process capability, super low latency of SPN FlexE via its SCL Layer1 cross connection, high-accuracy IEEE1588, and multi-SIDs of SRv6 capability which makes it ideal for 5G fronthaul/midhaul/backhaul applications.

- **OIF 2.1 FlexE Interface**

CTC8180 integrates FlexE interface based on OIF FlexE 2.1 protocol to provide slicing FlexE channel in up to 2x400G capability with the client speed granularity in multiples of 5gbps. In addition CTC8180 supports SPN spec China Mobile such as SCL Layer1 cross connection, FlexE OAM and PTP in idle block and Overhead block in FlexE frames, to address the low and fixed latency requirement for 5G uLLC applications.

- **Smart Network Telemetry Engine**

CTC8180 integrates extensive Network Telemetry with different sensors for Counter stats, Path Sensor, Event Sensor and Flow Sensor to gather telemetry information based on port, flow or globally and can log this record information into local CPU or remote analysis server or SDN controller for further management and analytics of network.

- **Cloud Security Engine**

CTC8180 offers encryption and decryption capability of VXLAN tunnel payload. CTC8180 supports full-set of packet encryption and decryption capability for both layer2 and layer3 packets to enhance the security of both underlay and overlay networks.

Application

CTC8180	
√	Enterprise/ DC/Carrier Networks
√	Extensive Edge Computing

Physical facts

Assembly	FCPBGA
Consumption	110W

OVERsVIEW

The Centec CTC8180 (TsingMa.MX) is a purpose-built Ethernet switch chip to address the growing demand for extreme low latency/jitter, comprehensive end-to-end tunnel security and rich network telemetry in the era of 5G and edge computing. CTC8180 provides 2.4T I/O bandwidth and superb flexible I/O connectivity capability, with a variety of port configurations, such as FlexE, QSGMII and USXGMII-M, to support full-range port speeds from 1000M to 400G.

FEATURES

- **Full set of Layer 2 and Layer 3 protocol**
  - VLAN, MAC, LAG, ECMP, Storm Control, VRF, VXLAN, 802.1BR， etc.
  - Support PFC，ECN，X-PIPE lossless technology to realize RDMA lossless transmission
  - NAT/NAPT
  - IPv4 to IPv6 transition
  - IPv4 and IPv6 Dual stack
  - Algorithm LPM with transition efficient IPv4 : IPv6 is 2:1
  - SRv6 capability with 3+1 levels of 128-bit SID and more levels of GSID
- **Full set of MPLS**
  - LSP，L2VPN，L3VPN，L2VPN-L3VPN Gateway
  - Segment Routing MPLS
- **Advanced H-QoS capability**
  - 64K Policer
  - 5-level of H-QoS
- **OAM**
  - 802.1ag/ Y.1731Ethernet OAM
  - G.8113.1/ G.8113.2 MPLS-TP OAM
  - TWAMP
  - Ethernet/MPLS-TP APS and BFD/ OAM APS
- **FlexE Interface**
  - Support for 400G/200G/100/50GE FLEXE PHY rate bonding for up to 8 PHYs in a group
  - Support for SCL L1 Cross Connect
  - Support for PW, Tunnel, FlexE protection
  - Support for FlexE PTP in FlexE overhead and FlexE OAM insertion, extraction and monitoring
- **Telemetry Feature Set**
  - Hardware based NetFlow engine for session and packet level monitoring and Analysis for information gathering such as buffer, latency and jitter
  - Support for INT protocol with INT Metadata insertion and extraction
  - Support for MPLS based iOAM
- **Security Feature Set**
  - Support for VLAN / MAC / Port / IP based ACL bonding
  - High reliable SRM ECC and TCAM SCAN capability
  - CoPP for traffic protection of CPU Plane
- **Timing Related**
  - Support for High Precision of IEEE1588v2 timing synchronization
  - Support for SyncE

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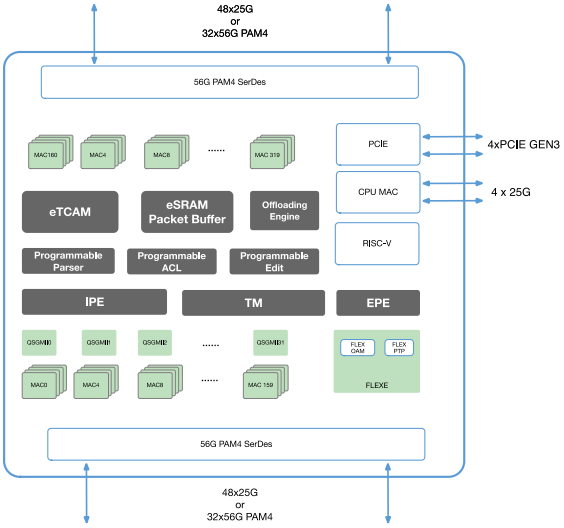
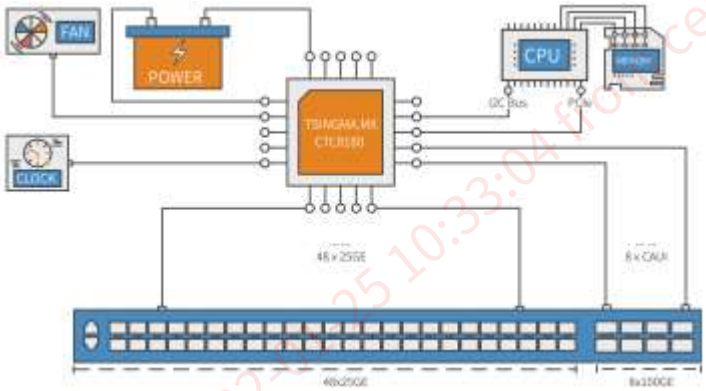
CTC8180 Architecture



48X25G+8X100G Application



Typical Scenario	Form Factor
ToR	48x10G/25G+8x100G(4x25G)
Edge Access	18x1G/10G/25G+4x100G(4x25G) or 16x100G(4x25G)
400G uplink	48x25G+4x200G(4x56G) + 4x25G CPU 或 16x100G(2x56G)+2x400G(8x56G)
5G Carrier	3 slots (100G FlexE or 4x25G/1x100G) + 5 slots 8x10G/QSGMII + 4x10G(FPGA CPU)
	4 slots (400G FlexE or 8x25G/2x100G) + 8 slots 8x10G/QSGMII + 4x10G(FPGA CPU)
Centralized Chassis	3 slots 12xQSGMII/24x10G + 3 slots 8x25G/4x100G

About Centec

Centec provides innovative switching silicon and whitebox solutions that improve SDN deployment. Centec is committed to empower SDN for carrier, enterprise and data center networks. Leveraging a high-performance open SDN architecture, Centec enables seamless migration from traditional L2, L3 and MPLS/ MPLS-TP architecture to the new SDN eras while solving SDN's biggest challenges. Centec and our customers are redefining the future of network switching.

Centec Communications Co., Ltd.
Suite 4F-13/16, Building B, No.5 Xing Han Street, Suzhou Industrial Park, Suzhou, China, 215021
Tel: +86-512-62885358
Fax: +86-512-62885870
For more information, visit: http://www.centecnetworks.com
Email: sales@centecnetworks.com

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