MAIPU

MP7500E Datasheet

Contents

Overview

MP7500E developed by Maipu is the first router that adopts the many-core technology in the world. It is one 10G high-end backbone core router based on the full investigation and deep understanding for the industry user service application. Based on the advanced multi-core design idea, MP7500E adopts the distributed processing structure and considers the data processing feature of the cloud network for the service and content, realizing the open and cloud customer services. With Maipu multi-thread patented processing technology and advanced multi-core processor hardware, MP7500E realizes high-speed IPv4 and MPLS forwarding. The powerful forwarding performance and rich service features meet the various network application requirements of the user.

As one multi-usage high-end backbone core router, MP7500E series router is mainly applied to the IP backbone network, IP MAN and the core and aggregation location of various large IP networks. The powerful forwarding performance and rich service capability of MP7500E can meet the various network application requirements of the user and can cooperate with the full series of Maipu routers to provide the whole network solution for the industry users in the sectors of carrier, finance, government, energy, transport, education and military, as well as the large/middle enterprise users.

MP7500E Series Core Router

Key Features

- **Advanced multi-core technology and rich service supporting capability**

MP7500E series 10G core router adopts the advanced multi-core processor. It is based on the advanced multi-core design idea and considers the data processing feature of the cloud network for the service and content, realizing the open and cloud customer services. It supports the user program to occupy the CPU separately and can calculate and complete the customized service functions separately, realizing the cloud service, anti-virus, mail filter, and security access control.

- **Wire-speed forwarding capability, supporting expansible switching capacity**

MP7500E adopts the advanced distributed processing structure, centralized control, and distributed processing to ensure the wire-speed processing capability of each slot. The system has good expansibility. With Maipu multi-thread patented processing technology and multi-core processor, ensure the data forwarding and load balance between multiple processing cores and realize the high-speed IPv4 and MPLS forwarding.

- **Rich service interface cards, meeting various networking requirements**

MP7500E adopts the integrated structure and supports high-performance multi-core processor. It can provide POS, CPOS, ATM, and E1 interface cards of 10GE, GE, 2.5G/622M/155M. The rich multi-service cards provide various value-added services, meeting the various networking requirements of the user.

- **Powerful route supporting capability**

MP7500E supports various dynamic routing protocols, such as RIP, OSPF, IS-IS and BGP. Its routing capability is powerful, applicable to Internet backbone network. Meanwhile, it supports IPv4/IPv6 dual protocol stack and IPv4/IPv6 transition mechanism of various application scenarios.

- **Perfect QoS and service supporting capability**

MP7500E supports hierarchical QOS (H-QoS), hardware-based bandwidth limitation, and various congestion management and congestion avoidance algorithms, such as PQ, CBWFQ, LLQ, and WRED, providing perfect QoS mechanisms for developing services. It also supports static multicast and various dynamic multicast routing protocols, controllable multicast, load balance, and traffic statistics.

- **Complete MPLS supporting capability**

MP7500 supports MPLS technology and realizes MPLS-based traffic engineering and Diffserv QoS. It supports L3 MPLS VPN, It can inter-communicate with MPLS VPN of the mainstream manufacturers' devices.

- **Carrier-class high reliability**

The key parts of MP7500E, such as switching matrix, master (route engine) and power, fan (MP7500E-08) and clock, support redundancy backup. It supports Graceful Restart of the OSPF, IS-IS and BGP routing protocols, IP FRR and LDP FRR, multiple system files and backup. All components support hot-swap, convenient for maintenance.

- **Perfect security mechanism**

MP7500E supports user hierarchical management and password protect, authenticating the login users. Different classes of users have different configuration authorities. The user authentication modes include AAA authentication and RADIOUS authentication.

Support SSHv2.0, providing security encryption channel for the user login.

Support standard and expanded ACL, filtering packets and preventing network attacks.

Support host firewall function, preventing DoS/DDoS attack.

Support URPF, preventing the network attack based on the source address spoofing.

Specifications

Hardware specifications			
Product Model	MP7500E-03-MF	MP7500E-04-MF	MP7500E-08-MF
Service slot	3	4	8
Control slot	2	2	2
Switching Fabric slot	/	2	2
Backplane bandwidth	120Gbps	160Gbps	320Gbps
Switching capacity	60Gbps	80Gbps	160Gbps
Throughput	45Mpps	60Mpps	120Mpps
Max power consumption	600W	600W	1200W
Power redundancy	1+1	1+1	2+1
Input voltage (AC)	100V-240V/47-63Hz		
Input voltage (DC)	-40V--57V		
Temperature	Long-term work temperature: 0-45℃		
	Short-term work temperature:–5-55℃		
	Storage temperature: -40-70℃		
Humidity	Long-term work humidity: 5%-85%, Non-condensing		
	Short-term work humidity: 0%-95%, Non-condensing		
	Storage relative humidity: 0%-95%, Non-condensing		
Altitude	Long-term work altitude: ≤3000m		
	Storage altitude: ≤5000m		
Software feature			
	WAN	PPP, MP, support LCP negotiation function and PAP/CHAP authentication, PPPoE	
	LAN	Dynamic and static ARP, proxy ARP, free ARP	
		Ethernet，Ethernet II, VLAN (VLAN-BASED PORT VLAN, VOICE VLAN, Guest VLAN), Super VLAN, 802.3x, 802.1p, 802.1Q, 802.1x	
		STP/RSTP/MSTP	
		IEEE802.3ad LACP L2 aggregation	
		Support N:1 mirror Support local mirror	
		Broadcast storm suppression	
Network	Routing protocol	Static route,RIP,OSPF,IS-IS,BGP,ECMP	

protocol		
	Multicast protocol	IGMP v1/v2/v3
		IGMP Snooping
		PIM-DM, PIM-SM, PIM-SDM, PIM-SSM
		MVPN
	IP application	DHCP Server, DHCP Client, DHCP Relay
		DNS, DDNS
		FTP Server, FTP Client
		Ping, Trace
		IP Accounting, UDP Helper, NTP
Network security	ACL	Standard IP ACL, extended IP ACL, standard MAC ACL, Ethernet protocol ACL
	Security defending	Control plane protect, URPF
	Firewall	Packet filter, status detection, unreasonable IP fragment filter, too-small packet filter, false source address detection
	VPN	L2TP, GRE, IPSec, IKE, RSA
	NAT	Static NAT, dynamic NAT, static NAPT, dynamic NAPT
	Authentication	Local authentication, RADIUS, TACACS
		IEEE802.1x authentication, MAC address authentication
	MPLS/BGP VPN (L3 VPN)	Support RFC2547, support one Site belonging to multiple VPNs, support multi-role host
QoS	Flow classification	Based on port, MAC address, IP address, IP priority, DSCP priority, TCP/UDP port number, protocol type
	Traffic monitoring	CAR, LR
	Congestion management	PQ, WRR, CQ, WFQ, LLQ, CBQ
	Congestion avoidance	RED, WRED
	Traffic shaping	GTS
Reliability	Component reliable	Power, fan, and service module support hot-swap
		Management control engine and forwarding engine are separated from each other
		The control board and power support redundancy backup
	Link reliable	Support BFD for BGP/IS-IS/OSPF/RSVP/VPLS PW/VRRP
		Support Line-detect technology
	Backup function	Support interface backup mode
		Support VRRP
		Support NSF/GR for OSFP/BGP/IS-IS/LDP/RSVP
		Support IP FRR, TE FRR
OAM	Network management	SNMP v1/v2/v3, MIB, RMON, SYSLOG
	System	Console port login management, AUX port login

	management	management, Telnet (VTY) remote management, SSH management

Order Information

Host model	Description
MP7500E-03	
MP7500E-03-MF	V1 Version: MP7500E-03 Chassis, two control engine slots, three service slots, two power slots, one fan slot
RM7C-MPU-A	V1 Version: MPU control engine for MP7500E-03, need configure, 128M Flash, one SD Slot, one CON/AUX port, one management Ethernet port, one CMM port, one debug port
FAN-5A-01	V1 Version: Fans for MP7500E-03
AD600-1S006B	V1 Version: 600W AD Power Module
MP7500E-04/08	
MP7500E-04-MF	V1 Version: MP7500E-04 Chassis, two control engine slots, four service slots, two switching fabric slots, two power slots, one fan slot
MP7500E-08-MF	V1 Version: MP7500E-08 Chassis, two control engine slots, eight service slots, two switching fabric slots, three power slots, one fan slot
RM7C-MPU	V1 Version: MPU control engine for MP7500E-08, need configure, 128M Flash, one SD Slot, one CON/AUX port, one management Ethernet port, one CMM port, one debug port
RM7C-SFU	V1 Version: RM7C-SFU Switching Fabric
FAN-7B-01	V1 Version: Fans for MP7500E-04
FAN-14B-01	V1 Version: Fans for MP7500E-08
AD600-1S006A	V2 Version: 600W AD Power Module
DD600-5S006A	V1 Version: 600W DC Power Module
Standard Module	

Module Name	Description
Mother Board	
RM7C-SPU102	V2 Version: Mother Board, two Daughter Module Slots
RM7C-SPU202	V1 Version: Mother Board, two Daughter Module Slots
Daughter Module	
RM7C-1POS-OC48	V2 Version: one port OC48 POS Module, need insert into mother board
RM7C-2POS-OC48	V2 Version: two port OC48 POS Module, need insert into mother Board
RM7C-1POS-OC12	V2 Version: one port OC12 POS Module, need insert into mother board
RM7C-2POS-OC12	V2 Version: two port OC12 POS Module, need insert into mother board
RM7C-4POS-OC12	V2 Version: four port OC12 POS Module, need insert into mother board
RM7C-1POS-OC3	V2 Version: one port OC3 POS Module, need insert into mother board
RM7C-2POS-OC3	V2 Version: two port OC3 POS Module, need insert into mother board
RM7C-4POS-OC3	V2 Version: four port OC3 POS Module, need insert into mother board

RM7C-1CPOS-OC3	V2 Version: one port OC3 channelized POS Module, need insert into mother board
RM7C-2CPOS-OC3	V2 Version: two port OC3 channelized POS Module, need insert into mother board
RM7C-8E1	V2 Version: eight port E1 Module, need insert into mother board
RM7C-8CE1	V2 Version: eight port channelized E1 Module, need insert into mother board
RM7C-20GET	V2 Version: 20 port 100/1000M Base-T Ethernet Module, need insert into mother board
RM7C-20GEF	V2 Version: 20 port 1000M Base-X SFP Ethernet Module, need insert into mother board
RM7C-8GE	V1 Version: eight port Gigabit Combo Ethernet Module, need insert into mother board
RM7C-1XGEF	V1 Version: one port 10G SFP+ Ethernet Module, need insert into mother board
Multi-Service Module	
RM-MSU-A	V1 Version: Multi-Service Module, Support IPsec, L2TP, GRE, NAT, PBR, IP-FRR Function