

5.1 Performance Parameters

5.1.1 Overall Performance

Table 5-1 The AN5006-20 overall performance

Item	Specification
The MCU card switching capacity	8Gbit/s
Backplane bus capacity	18Gbit/s
Optical line protection switch time	≤50ms

5.1.2 Access Capacity

Table 5-2 The AN5006-20 access capacity

Item	Specification
Maximum quantity of ADSL / ADSL2+ interfaces for single subrack	128
Maximum quantity of VDSL2 interfaces for single subrack	96
Maximum quantity of FE interfaces for single subrack	64
Maximum quantity of POTS interfaces for single subrack	256
Maximum quantity of E1 interfaces for single subrack	4
Maximum quantity of EPON / GPON interfaces for single subrack	2 (1+1 protection)
Maximum quantity of GE electrical interfaces for single subrack	2

5.1.3 Service Characteristics

Table 5-3 The AN5006-20 service characteristics

Item	Specification
Redundancy protection	Support uplink optical line 1:1 protection.
	Support AC and DC power supplies simultaneously.
VLAN	Support maximally 4k VLANs based on IEEE 802.1q for a single subrack.
	Support QinQ VLAN defined in the IEEE 802.1 ad-2005 and CoS copy.
	Support VLAN translation.
Multicast	Support IGMP Proxy / Snooping.
	Support controllable multicast.
	Support multicast VLAN and cross-VLAN multicast copy.
	Support subscriber fast-leave.
	Support up to 256 multicast groups for a subscriber of each service port to join in simultaneously.
	Support force-untag of the ONU's downlink multicast VLAN.
	Support multicast VLAN based management and identification of program sources and subscribers.
Support multicast preview and pre-join.	
STP / RSTP	Support IEEE 802.1d and IEEE802.1w.
Port mirroring	Support ingress and egress mirroring.
	Support flow mirroring.
Port trunking	Support IEEE 802.3ad.
Port isolation	Support subscriber port isolation.
Broadcast storm control	Support port-based broadcast / multicast / unknown packets rate control.
FDB	Support 8k MAC address entries.
Flow control	Support IEEE 802.3x.
FEC	Support FEC, improving optical power budget by 3dB.
Encryption	Support two encryption algorithms: triple churning algorithm and AES-128.
Service differentiation	Differentiate service flows based on the source MAC address, destination MAC address, VLAN ID, CoS, source IP address, destination IP address, protocol type and port No.

Item	Specification
Downlink service rate limiting	Support rate limiting based on service flow and port.
Optical power detection	Supports optical power detection for the PON optical module.
VoIP service	Support H.248.
	Support signaling tracing for fault diagnosis.
E1 private line service	Provide TDM service encapsulation via PWE3 protocol, and support transparent E1 service.
Synchronization	Transmit the synchronous clock of the office end and support 1PPS, TOD, and 10MHZ signal output.
QoS features	Differentiate and filter packets based on the physical port, source MAC address, destination MAC address, Ethernet type, VLAN ID, CoS, source IP address, destination IP address, IP port and protocol type.
	Support EPON port bandwidth control, with 1 kbit/s granularity.
	Support GPON port bandwidth control, with 64 kbit/s granularity.
	Support up to eight priority queues and support SP, WRR, and SP+WRR three queue scheduling algorithms.
	Support uplink port traffic shaping.
	Support uplink port flow-based rate limiting and flow-based mirroring.
	Support multi-LLID technology, with the upper limit being 8.
	Support T-CONT type 1 to type 5 service scheduling on the GPON port.
Support the uplink DBA and SBA functions on the PON port.	
DHCP	Support DHCP Option-82.
Security characteristics	Support loopback test on the subscriber port.
	Report SN / MAC address to the network management system.
	Filter packets and bind ports based on the source MAC address, destination MAC address, Ethernet type, VLAN ID, CoS, source IP address, destination IP address, port No. and protocol type.
	Support anti-DoS attack.
	Support subscriber isolation on Layer 2.
	Limit on the number of multicast groups that a single FE port can join and the number of the MAC address entries.

5.1.4 Reliability Specifications

See Table 5-4 for the AN5006-20 card reliability specifications; see Table 5-5 for the equipment reliability specifications.

Table 5-4 The AN5006-20 card reliability specifications

Card	MTBF (hour)	MTBF (year)	Failure Rate (ppm)
MCU	204669.84	23.40	4.274
AD32	156789.49	17.90	5.587
VD24	156789.49	17.90	5.587
POTS	139448.10	15.90	6.289
PWR	153542.63	17.52	5.705
4E1	149971.26	17.12	5.841
ETH	138816.83	15.85	6.310
FAN	130524.12	14.90	6.711
Note: the MTTR (Mean Time to Repair) for each card is 0.5 hour.			

Table 5-5 The AN5006-20 reliability specifications

Configuration model	MTBF (hour)	MTBF (year)	Failure Rate (ppm)	Availability
IP uplink, 256 lines	125906.76	14.37	7.942	0.99999205
Note: the MTTR (Mean Time to Repair) for the whole system is 0.5 hour.				

5.2 Interface Specifications

5.2.1 GPON Interface

Table 5-6 The GPON interface specifications

Parameter		Min.	Tye.	Max.	Unit
Transmitter	Tx wavelength	1260	1310	1360	nm
	Average launch power	1	—	+5	dBm
	Average launch power of OFF transmitter	—	—	-40	dBm
	Extinction ratio	9	—	—	dB
Receiver	Rx wavelength	1480	1490	1500	Nm
	Sensitivity	—	—	-28	dBm
	Overload optical power	-6	—	—	dBm

5.2.2 EPON Interface

Table 5-7 The EPON interface specifications

Parameter		Min.	Tye.	Max.	Unit
Transmitter	Tx wavelength	1260	1310	1360	nm
	Average launch power	-1	—	+4	dBm
	Average launch power of OFF transmitter	—	—	-45	dBm
	Extinction ratio	9	—	—	dB
Receiver	Rx wavelength	1480	1490	1500	Nm
	Sensitivity	—	—	-25	dBm
	Overload optical power	-3	—	—	dBm

5.2.3 Ethernet Electrical Interface

Table 5-8 The Ethernet electrical interface specifications

Item	10 / 100 / 1000Base-T
Interface type	RJ45
Interface rate	10 / 100 / 1000Mbit/s self-adaptive
Transmission media	CAT-5
Applicable standard	IEEE 802.3-2008
Transmission distance	100m
Card with this interface	MCU

5.2.4 xDSL Interface

Table 5-9 The xDSL interface specifications

Item	ADSL Interface	ADSL2+ Interface	VDSL2 Interface
Interface type	SCSI-68	SCSI -68	SCSI -68
Interface rate	Uplink: 1Mbit/s Downlink: 8Mbit/s	Uplink: 1Mbit/s Downlink: 24Mbit/s	Uplink: 50Mbit/s Downlink: 85Mbit/s
Transmission media	Twisted-pair cable	Twisted-pair cable	Twisted-pair cable
Applicable standard	ITU-T G.992.1(G.dmt), G.992.2(G.lite) and ANSI T1.413	ITU-T G.992.3, G.992.5 and ANSI T1.413	ITU-T G.993.2, G.992.1, G.992.3 and G.992.5
Transmission distance	3 km to 5 km	6.5 km	2.5 km
Card with this interface	AD32		VD24

5.2.5 Console Interface

Table 5-10 The Console interface specifications

Item	Specification
Interface type	RJ-45
Applicable standard	Asynchronous EIA / TIA-232
Rate	9600 bit/s
Card with this interface	MCU

5.3 Mechanical Dimensions and Weight

Table 5-11 Mechanical dimensions and weight of the AN5006-20

Item	Dimensions (Height × Width × Depth)	Weight (Net)
Subrack	88 mm × 481 mm × 250 mm	3 kg
Subrack (fully loaded with cards)	88 mm × 481 mm × 250 mm	12 kg

5.4 Power Consumption

A single AN5006-20 subrack's maximum power consumption is 200 W.

The following table lists the power consumption of each card on the AN5006-20, with the -48V power supply.

Table 5-12 Power consumption of each card on the AN5006-20

Card	Power Consumption	Card	Power Consumption
MCU	20 W	4E1	20 W
AD32	34 W	FAN	12 W
VD24	36 W	POTS	45 W
ETH	25 W	—	—

5.5 Equipment Room Conditions

5.5.1 Power Supply

- ◆ Power voltage: -48V DC (-40 V to -57 V), or 220V AC (85 V to 265 V).
- ◆ The lead-acid storage battery: -48 V and 1A.
- ◆ Power supply: >200 W (a single subrack, fully loaded with cards).

5.5.2 Running Environment

- ◆ Floor bearing: >600kg / m².
- ◆ No corrosive and solvent gas, and no dust in the atmosphere; no strong electromagnetic field nearby.
- ◆ The dust in the environment should be nonconductive of both electricity and magnetism, and noncorrosive, and dust (diameter>5μm) concentration index: $\leq 3 \times 10^4$ unit/m³.
- ◆ Earth resistance: <5Ω.
- ◆ Atmospheric pressure: 86 kPa to 106 kPa.
- ◆ Temperature and humidity:
 - ▶ Operating temperature: -30°C to +55°C;
 - ▶ Storage temperature: -40°C to +70°C;
 - ▶ Relative humidity: $\leq 90\%$.