

EPON/1GE

EXTRALINK LUNA

TEST



LUNA
EPON/1GE

- ROUTING/NAT FUNCTION
- 1 X GIGABIT ETHERNET
- 1 X EPON OPTIC INTERFACE

SYMMETRIC 1.25GBPS UPSTREAM/DOWNSTREAM
SC SINGLE-MODE FIBER SPLIT RATIO : 1:64
TRANSMISSION DISTANCE 20KM

- CHIPSET ZTE

We present test of EPON / ONU EXTRALINK device called **LUNA**.

The testing procedure consists of the following tests:

- performance - tcp / udp, the number of packets per second;
- web interface;

Description of testing station.

The tests were performed using the following equipment:

MikroTik
CCR-1016-12s-1s+
RM



EXTRALINK SFP RJ45
1.25G 100M
(1000BASE-T)



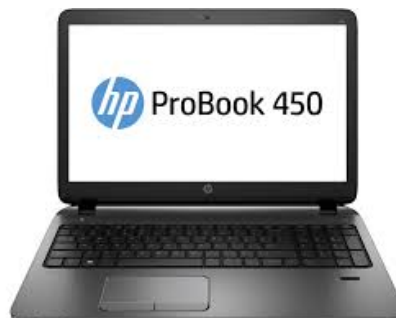
BDCOM P3310
OLT



EXTRALINK 1:16 PLC
SPLITTER SC/UPC
900UM 1.5M



LAPTOP HP
PROBOOK 450



LENOVO Z70

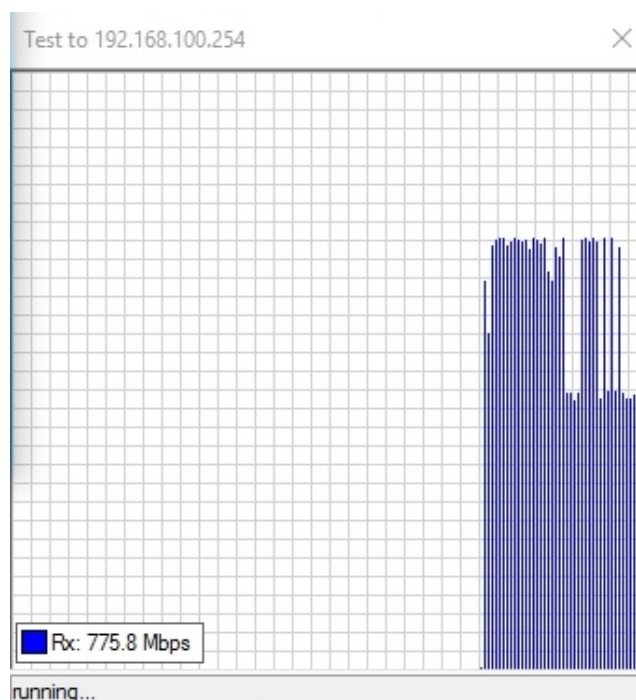
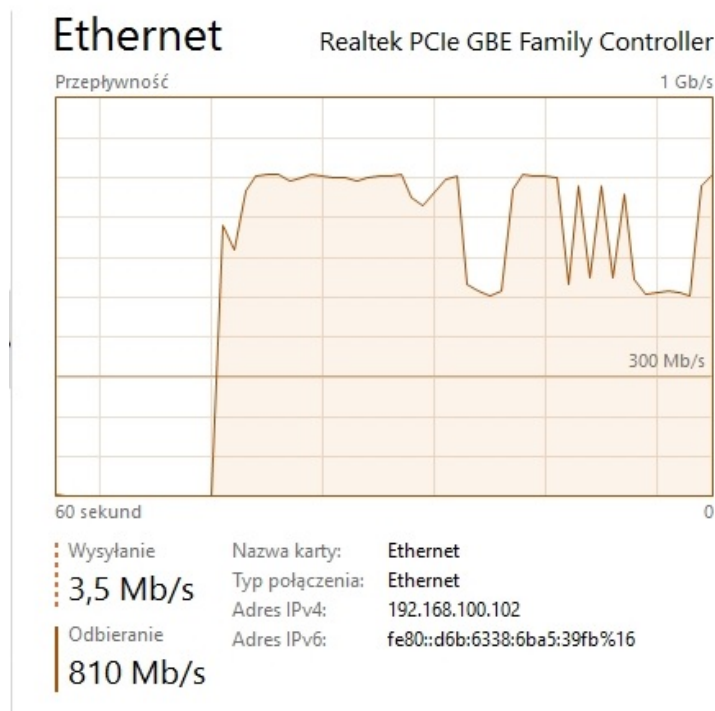


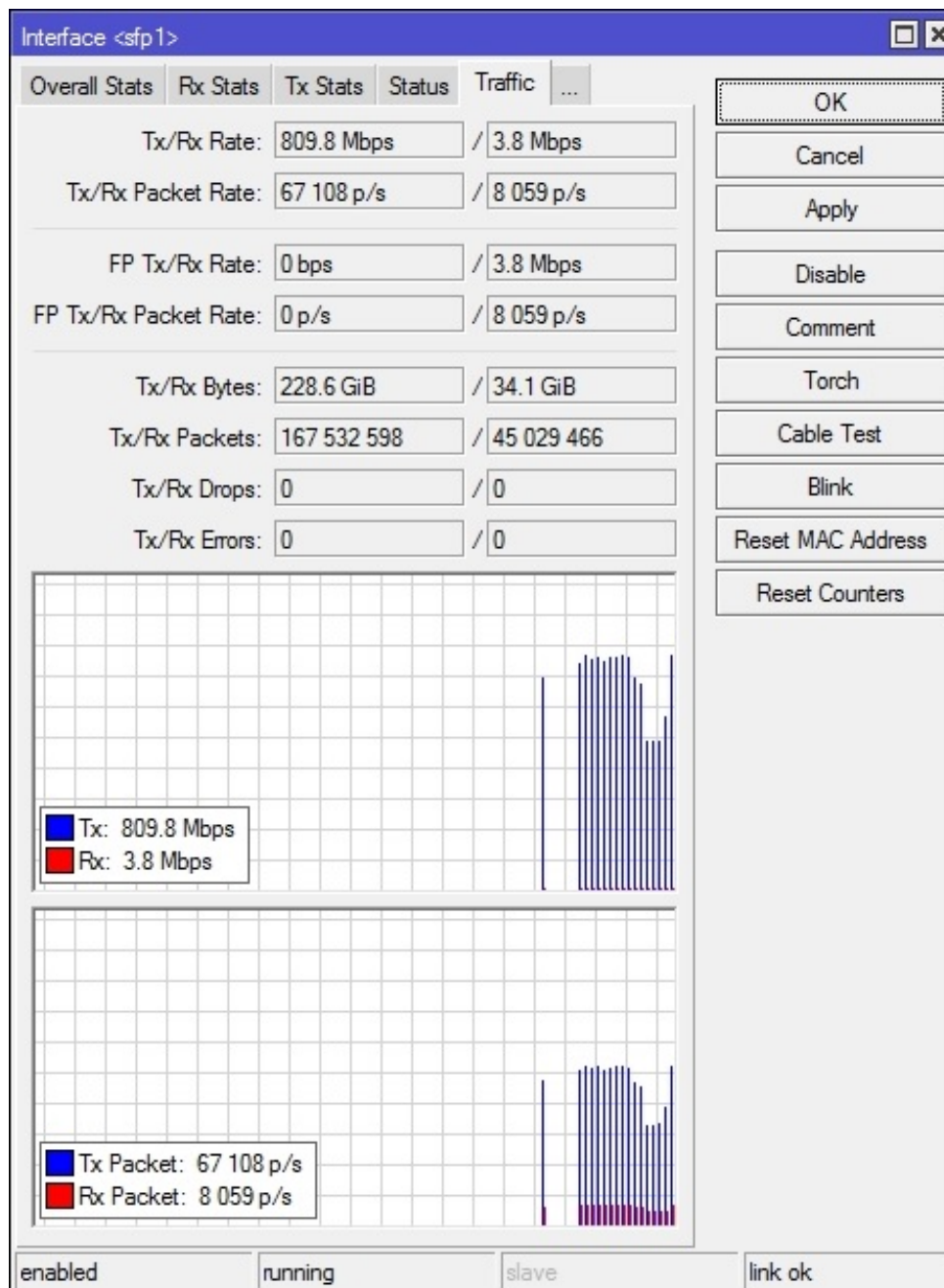
Performance.

To check the performance we used: **EXTRALINK LUNA EPON/1GE**, built-in mechanism Mikrotik Bandwidth Test v1.0 and CCR-1016-12S-1S+.

The second test was performed between two laptops using applications iperf, actually graphic version Jperf, which works on the Java platform.

Mikrotik BTest TCP receive



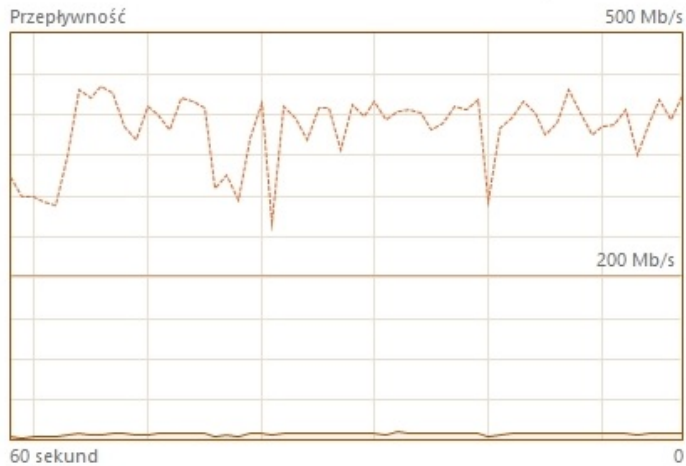


As you can see we obtained throughput of 800 Mbps with over 67 100 p/s.

Mikrotik BTest TCP send

Ethernet

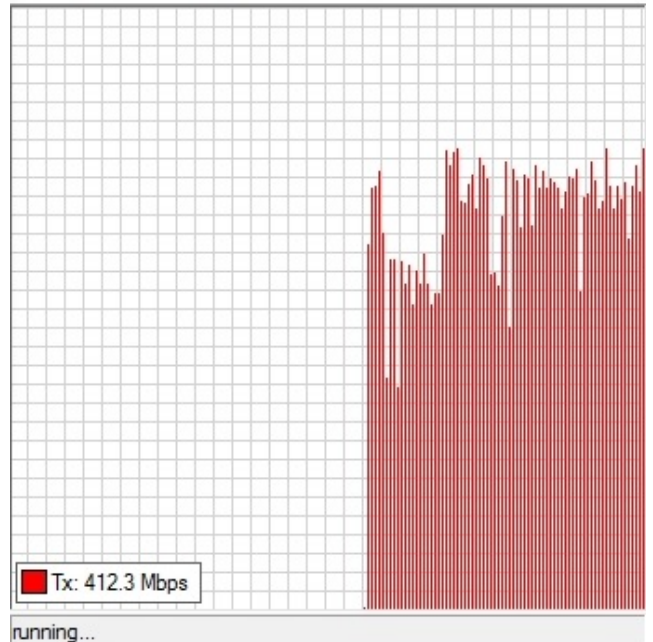
Realtek PCIe GBE Family Controller



Wysyłanie
426 Mb/s
Odbieranie
9,1 Mb/s

Nazwa karty: Ethernet
Typ połączenia: Ethernet
Adres IPv4: 192.168.100.102
Adres IPv6: fe80::d6b:6338:6ba5:39fb%16

Test to 192.168.100.254



Interface <sfp1>

Overall Stats Rx Stats Tx Stats Status Traffic ...

Tx/Rx Rate:	8.5 Mbps	/	429.6 Mbps
Tx/Rx Packet Rate:	19 355 p/s	/	43 343 p/s
FP Tx/Rx Rate:	0 bps	/	429.6 Mbps
FP Tx/Rx Packet Rate:	0 p/s	/	43 343 p/s
Tx/Rx Bytes:	251.6 GiB	/	38.1 GiB
Tx/Rx Packets:	185 205 124	/	50 342 483
Tx/Rx Drops:	0	/	0
Tx/Rx Errors:	0	/	0

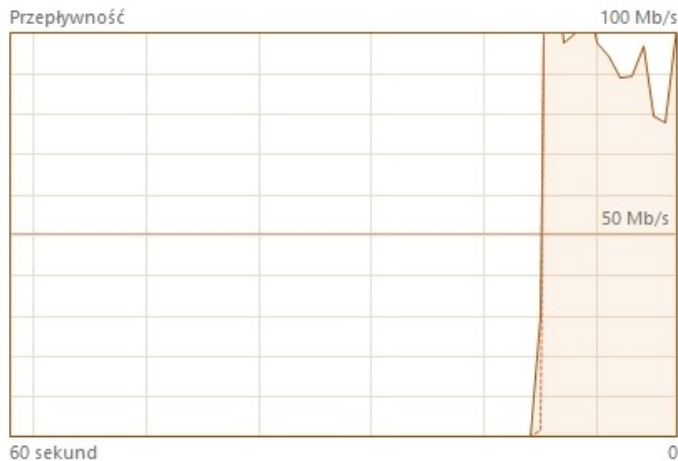
enabled running slave link ok

OK
Cancel
Apply
Disable
Comment
Torch
Cable Test
Blink
Reset MAC Address
Reset Counters

Mikrotik BTest TCP both

Ethernet

Realtek PCIe GBE Family Controller

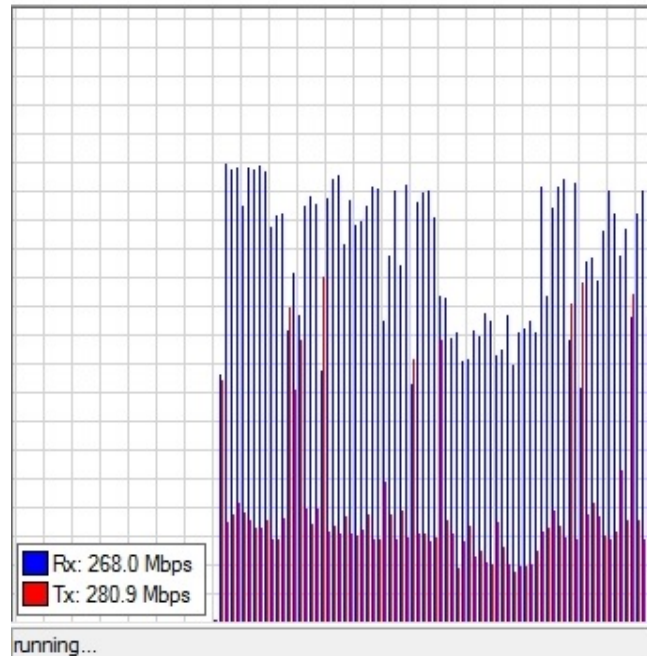


Wysyłanie
336 Mb/s

Odbieranie
178 Mb/s

Nazwa karty: Ethernet
Typ połączenia: Ethernet
Adres IPv4: 192.168.100.102
Adres IPv6: fe80::d6b:6338:6ba5:39fb%14

Test to 192.168.100.254



Interface <sfp 1>

Overall Stats Rx Stats Tx Stats Status Traffic ...

Tx/Rx Rate: 297.7 Mbps / 285.4 Mbps

Tx/Rx Packet Rate: 33 151 p/s / 29 584 p/s

FP Tx/Rx Rate: 0 bps / 285.4 Mbps

FP Tx/Rx Packet Rate: 0 p/s / 29 584 p/s

Tx/Rx Bytes: 3880.6 MiB / 8.0 GiB

Tx/Rx Packets: 4 543 578 / 6 608 509

Tx/Rx Drops: 0 / 0

Tx/Rx Errors: 0 / 0

Tx: 297.7 Mbps
Rx: 285.4 Mbps

Tx Packet: 33 151 p/s
Rx Packet: 29 584 p/s

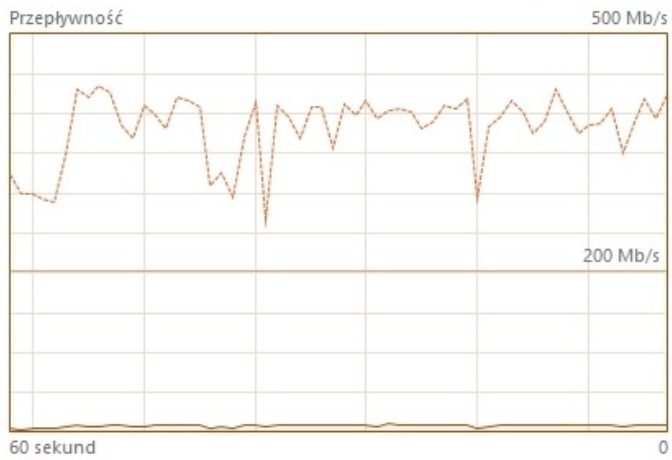
OK
Cancel
Apply
Disable
Comment
Torch
Cable Test
Blink
Reset MAC Address
Reset Counters

enabled running slave link ok

Mikrotik BTest UDP send

Ethernet

Realtek PCIe GBE Family Controller

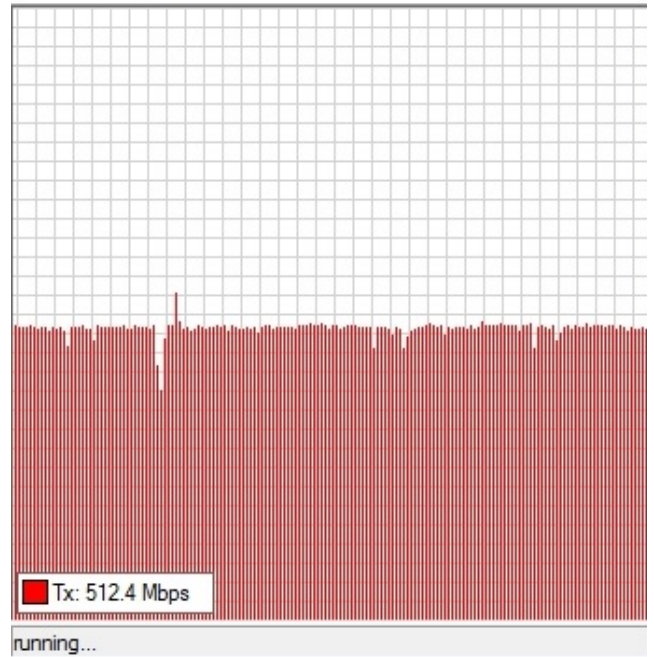


Wysyłanie
426 Mb/s

Odbieranie
9,1 Mb/s

Nazwa karty: Ethernet
Typ połączenia: Ethernet
Adres IPv4: 192.168.100.102
Adres IPv6: fe80::d6b:6338:6ba5:39fb%16

Test to 192.168.100.254



Interface <stp1>

Overall Stats	Rx Stats	Tx Stats	Status	Traffic	...
Tx/Rx Rate:	145.9 kbps	534.4 Mbps			
Tx/Rx Packet Rate:	16 p/s	44 135 p/s			
FP Tx/Rx Rate:	0 bps	534.4 Mbps			
FP Tx/Rx Packet Rate:	0 p/s	44 135 p/s			
Tx/Rx Bytes:	10.5 GiB	36.4 GiB			
Tx/Rx Packets:	14 437 161	29 146 299			
Tx/Rx Drops:	0	0			
Tx/Rx Errors:	0	0			

Tx: 145.9 kbps
Rx: 534.4 Mbps

Tx Packet: 16 p/s
Rx Packet: 44 135 p/s

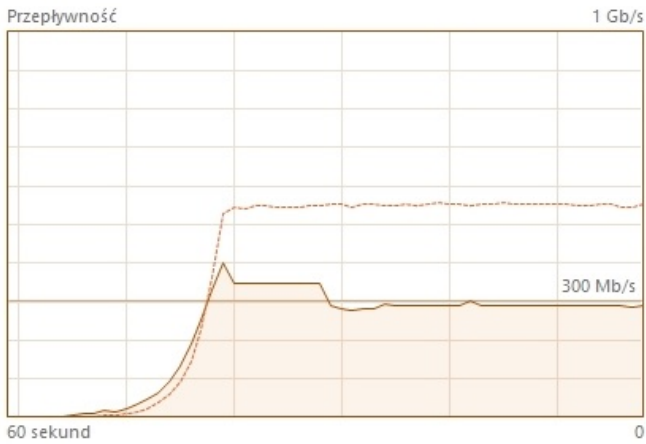
enabled running slave link ok

OK
Cancel
Apply
Disable
Comment
Torch
Cable Test
Blink
Reset MAC Address
Reset Counters

Mikrotik BTest UDP both

Ethernet

Realtek PCIe GBE Family Controller

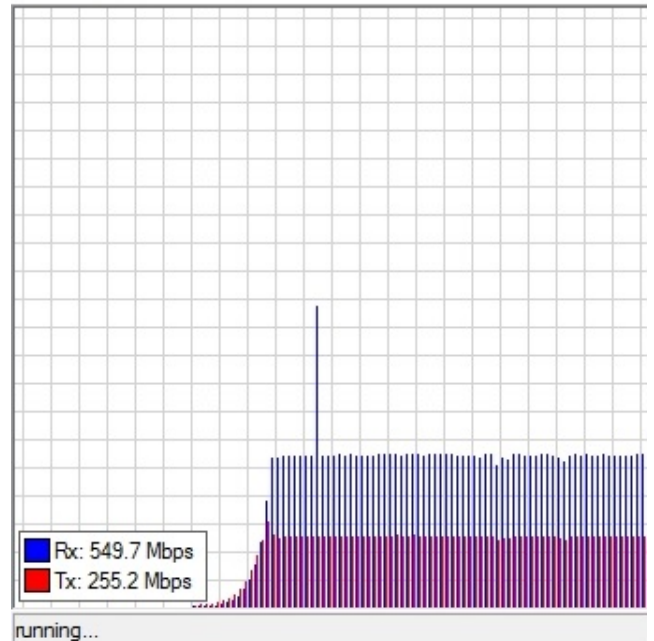


Wysyłanie
552 Mb/s

Odbieranie
289 Mb/s

Nazwa karty: Ethernet
Typ połączenia: Ethernet
Adres IPv4: 192.168.100.102
Adres IPv6: fe80::d6b:6338:6ba5:39fb%14

Test to 192.168.100.254



Interface <stp1>

Overall Stats Rx Stats Tx Stats Status Traffic ...

Tx/Rx Rate: 294.9 Mbps / 553.5 Mbps

Tx/Rx Packet Rate: 24 357 p/s / 45 718 p/s

FP Tx/Rx Rate: 0 bps / 553.5 Mbps

FP Tx/Rx Packet Rate: 0 p/s / 45 718 p/s

Tx/Rx Bytes: 13.1 GiB / 93.8 GiB

Tx/Rx Packets: 16 246 295 / 69 864 129

Tx/Rx Drops: 0 / 0

Tx/Rx Errors: 0 / 0

Tx: 294.9 Mbps
Rx: 553.5 Mbps

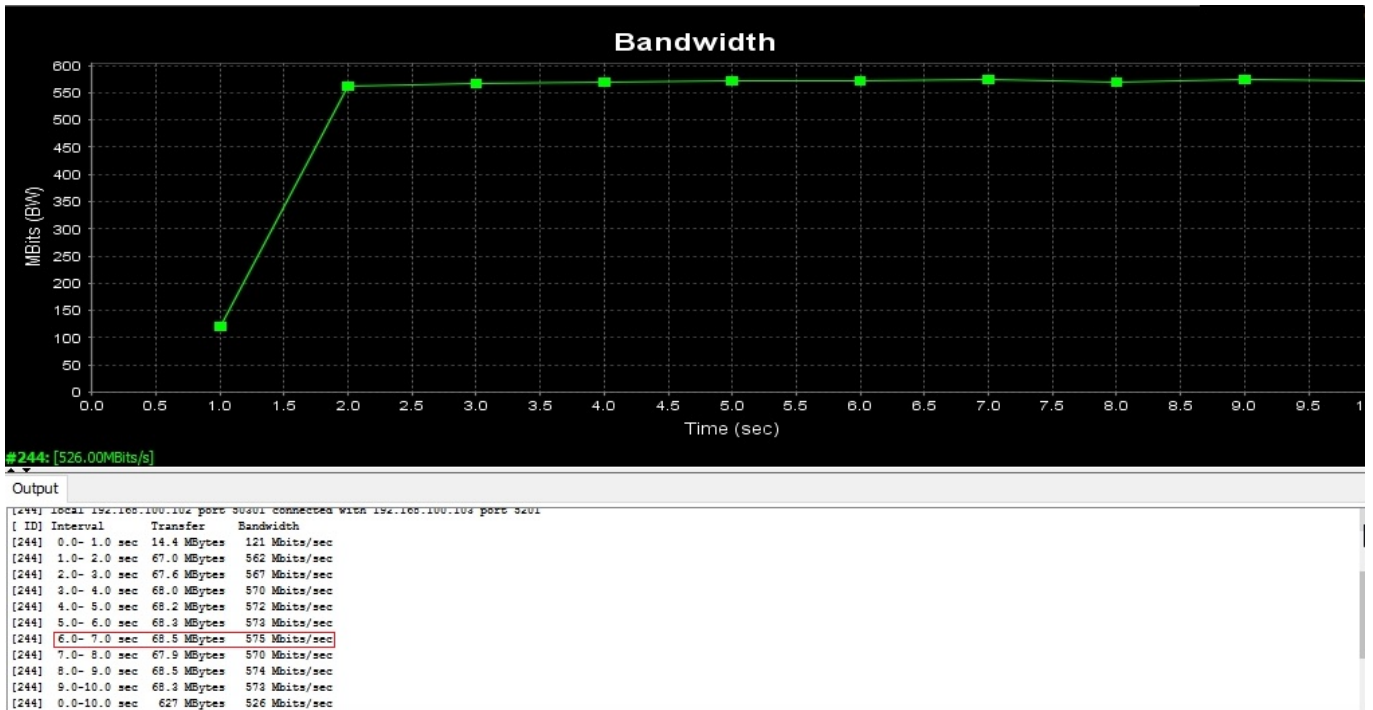
Tx Packet: 24 357 p/s
Rx Packet: 45 718 p/s

OK
Cancel
Apply
Disable
Comment
Torch
Cable Test
Blink
Reset MAC Address
Reset Counters

enabled running slave link ok

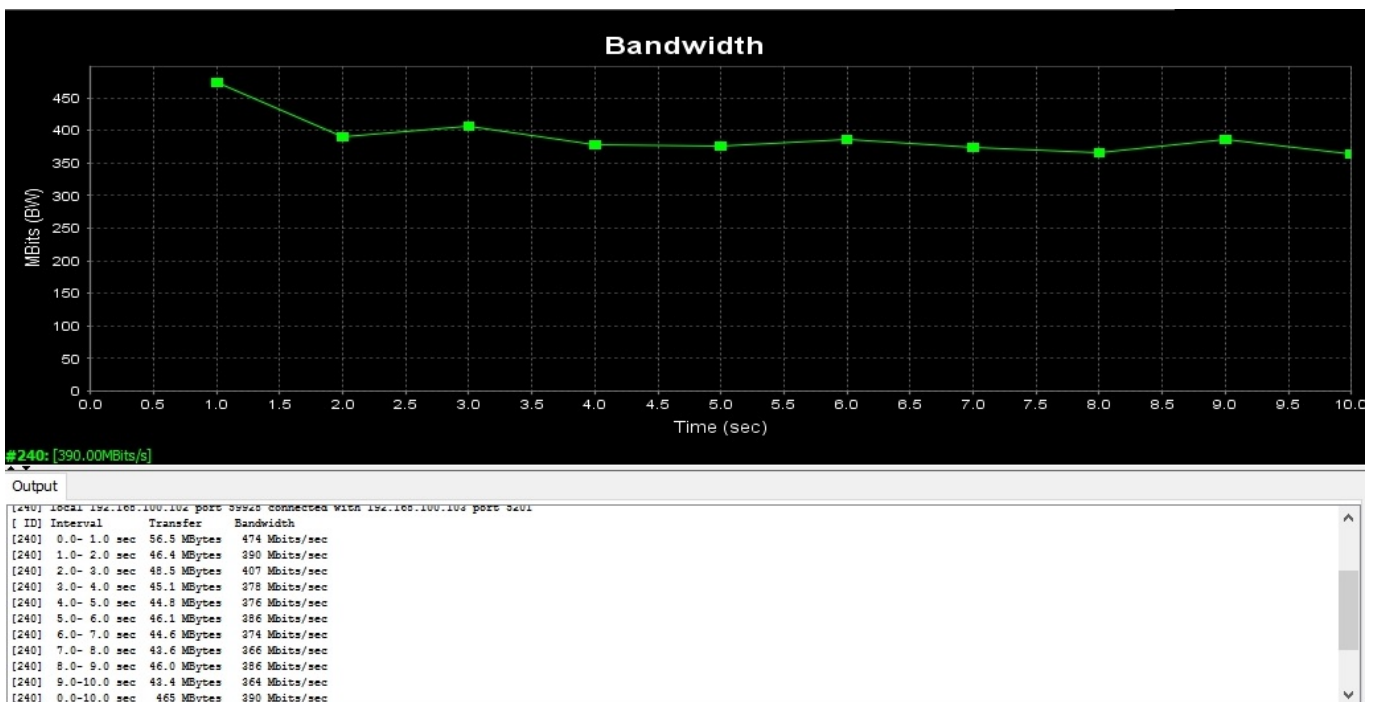
Jperf TCP

```
bin/jperf.exe -c 192.168.100.103 -P 1 -i 1 -p 5201 -C -f m -t 10
```



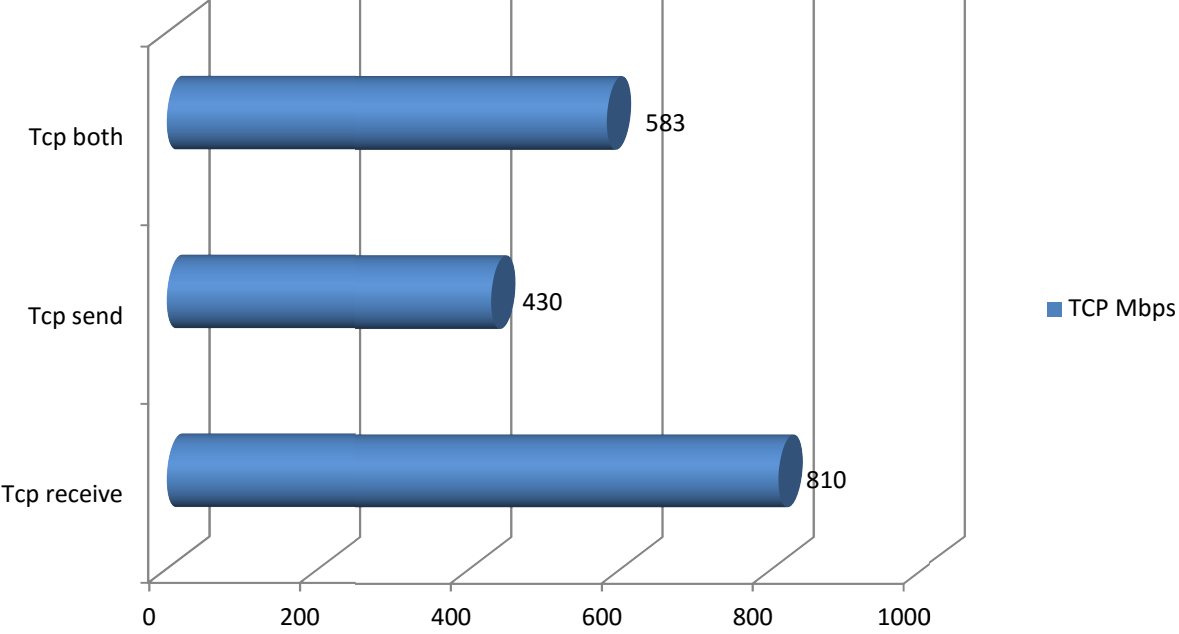
Jperf UDP

```
bin/jperf.exe -c 192.168.100.103 -u -P 1 -i 1 -p 5201 -C -f m -b 1000.0M -t 10
```

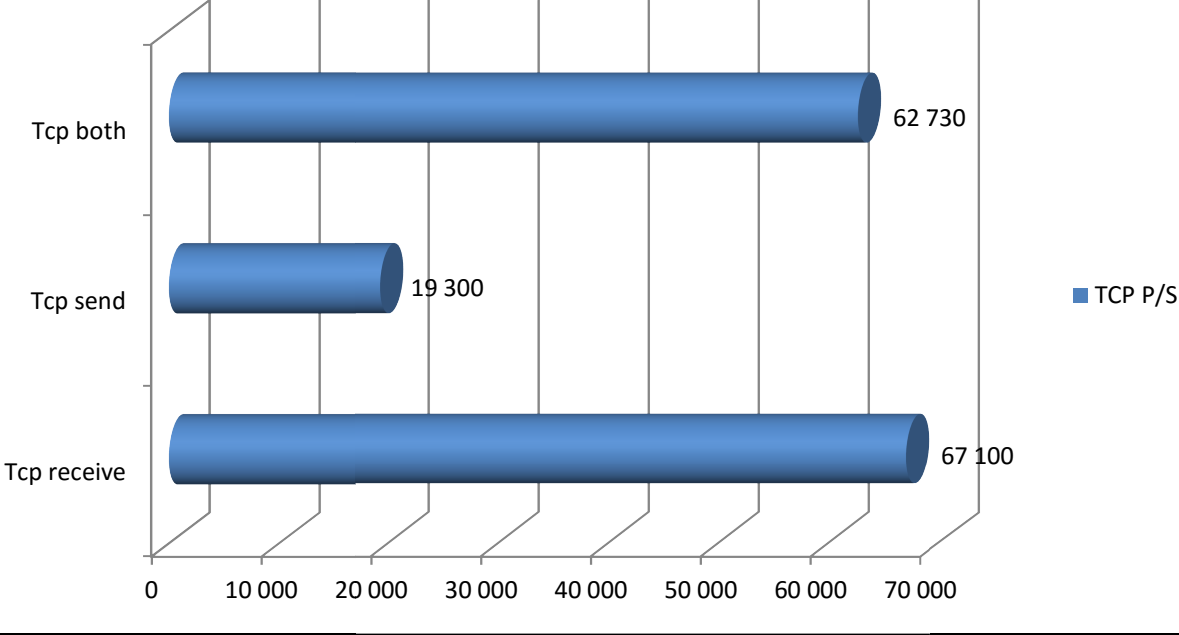


Results.

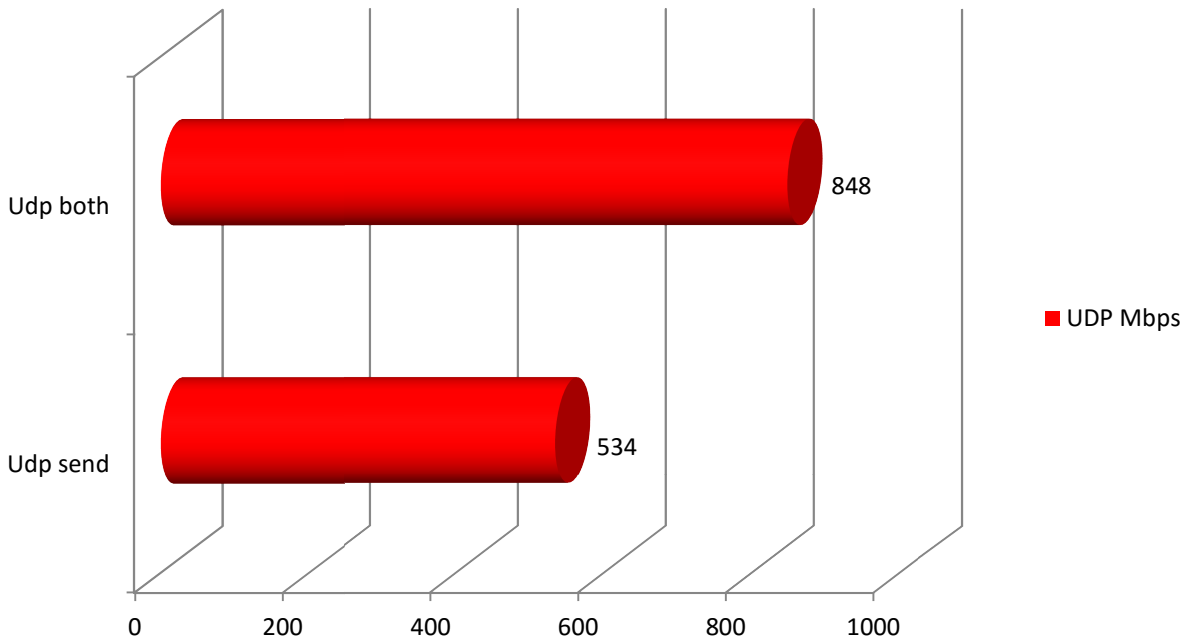
MikroTik BTest TCP



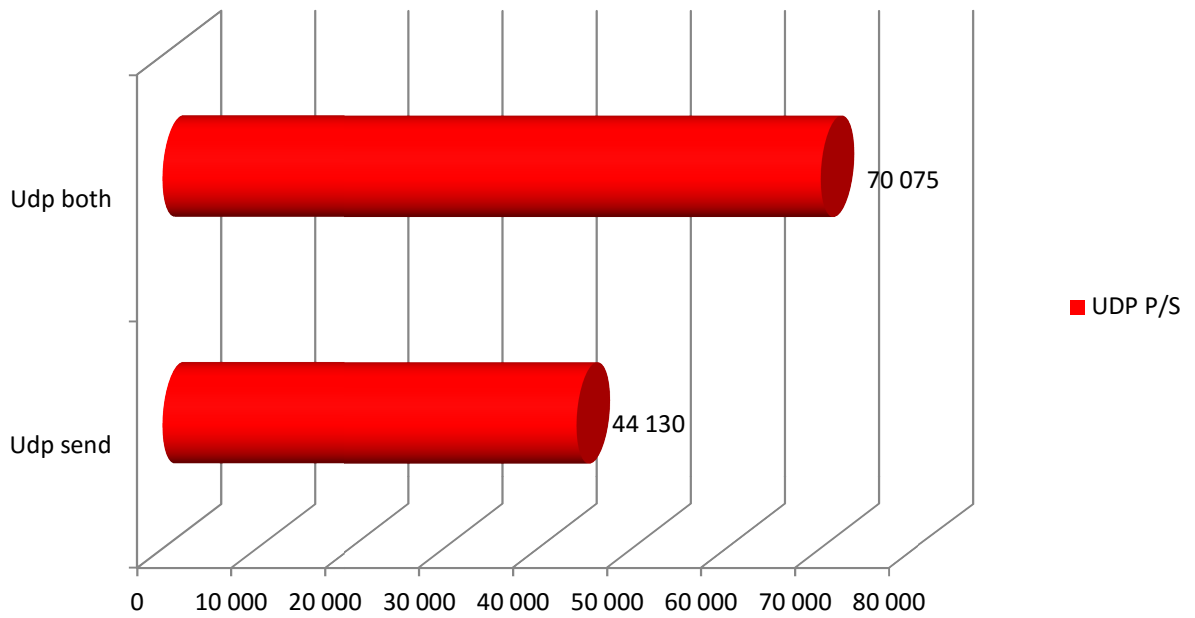
MikroTik BTest TCP



MikroTik BTest UDP



MikroTik BTest UDP



Web Interface

The most important configuration option EXTRALINK **LUNA** is the routing function. Here are a few screenshots related to the ONU functionality.

WAN INTERFACE

This screenshot shows the WAN Connection configuration page. The left sidebar contains a menu with 'WAN Connection' selected. The main area is titled 'WAN INTERFACE' and contains the following configuration fields:

- Connection Name: Create WAN Conne
- New Connection Name: [Empty]
- Enable VLAN:
- VLAN ID: [Empty]
- 802.1p: 0
- Type: Route
- Service List: INTERNET
- MTU: 1492
- Link Type: PPP (dropdown menu is open showing options: PPP, IP)
- Username: adminisp
- Password: [Masked]
- Authentication Type: Auto
- Connection Trigger: Always On
- IP Version: IPv4
- PPP TransType: PPPoE
- IPv4: Enable NAT

Buttons for 'Help' and 'Logout' are visible on the right side.

This screenshot shows the WAN Connection configuration page with the IP settings expanded. The configuration fields are:

- Connection Name: Create WAN Conne
- New Connection Name: [Empty]
- Enable VLAN:
- VLAN ID: [Empty]
- 802.1p: 0
- Type: Route
- Service List: INTERNET
- MTU: 1500
- Link Type: IP
- IP Version: IPv4
- IP Type: Static
- IPv4: Enable NAT
- IP Address: 10.10.16.
- Subnet Mask: 255.255.255.0
- Gateway: 10.10.16.1
- DNS Server1 IP Address: 10.10.16.1
- DNS Server2 IP Address: 8.8.8.8
- DNS Server3 IP Address: [Empty]

Buttons for 'Help' and 'Logout' are visible on the right side.

LAN INTERFACE

Status	Network	Security	Application	Administration	Help
--------	---------	----------	-------------	----------------	------

WAN

LAN

DHCP Server

PON

Routing(IPv4)

Port Configuration

NOTE: 1. The DHCP Start IP Address and DHCP End IP address should be in the same subnet as the LAN IP.

LAN IP Address: [Help](#)

Subnet Mask: [Logout](#)

Enable DHCP Server

DHCP Start IP Address:

DHCP End IP Address:

Assign IspDNS

DNS Server1 IP Address:

DNS Server2 IP Address:

DNS Server3 IP Address:

Default Gateway:

Lease Time: sec

Allocated Address

MAC Address	IP Address	Remaining Lease Time	Host Name	Port
There is no data.				

[Submit](#) [Cancel](#)

VLAN MODE

Status	Network	Security	Application	Administration	Help
--------	---------	----------	-------------	----------------	------

WAN

LAN

PON

Routing(IPv4)

Port Configuration

Mode


Port Isolation

Rate Limiting

Flow Control

MAC Configuration

VLAN

 Attention: changing the vlan mode will clear the old vlan list!

Port:

VLAN Mode: [Help](#)

- transparent
- tag**
- translation
- trunk

[Logout](#)

[Submit](#) [Cancel](#)

MULTICAST

Status | Network | Security | **Application** | Administration | Help

MultiCast

- IGMP Mode**
- Basic Configuration
- VLAN Configuration
- Tag Configuration
- Maximum Address Configuration

BPDU

DNS Service

Port Forwarding

Multicast Mode
Disable
Snooping Mode
CTC IGMP

VLAN CONFIGURATION

Status | Network | Security | **Application** | Administration | Help


MultiCast

- IGMP Mode
- Basic Configuration
- VLAN Configuration**
- Tag Configuration
- Maximum Address Configuration

BPDU

DNS Service

Port Forwarding

 VLAN Configuration only takes effect in IGMP Snooping and IGMP Proxy modes.

Port

WAN VLAN (1-4094)

LAN VLAN (1-4094)

Port	WAN VLAN	LAN VLAN	Delete
There is no data, please add one first.			

FIREWALL

Status | Network | Security | Application | Administration | Help

Firewall

Firewall

Service Control

MAC Filter

IP Version IPv4

Name

Enable

Order (0 ~ 31)

Protocol TCP

State ANY

Source IP Address

Source IP Mask

Start Source Port

End Source Port

Destination IP Address

Destination IP Mask

Start Destination Port

End Destination Port

The direction of data flow WAN->CPE

Mode Discard

Name	Protocol	Source IP Address / Mask	Source Port	Order	The direction of data flow	Modify	Delete
Enable	State	Destination IP Address / Mask	Destination Port	Mode			
There is no data, please add one first.							

SERVICE CONTROL

Status | Network | Security | Application | Administration | Help

Firewall

Service Control

Service Control

MAC Filter

IP Version IPv4

Enable

Ingress LAN

Start Source IP Address LAN

End Source IP Address WAN

Mode Discard

HTTP

FTP

Service List SSH

TELNET

HTTPS

Enable	Ingress	Start Source IP Address	End Source IP Address	Mode	Service List	Modify	Delete
✔	WAN			Permit	TELNET		

Note: If you need to configure the above remote access ports, please click on the hyperlinks below.

[Modify Remote Access Port](#)

MAC FILTERING

Status
Network
Security
Application
Administration
Help

Firewall

Service Control

MAC Filter

MAC Filter

1. If you choose the Permit mode, please add the MAC address of your PC first, otherwise internet access is not allowed.

2. Enable switching or Mode switching will take effect immediately.

[Help](#)

[Logout](#)

Enable

Mode Discard

Type Bridge

Protocol ALL

Source MAC Address IP :

Destination MAC Address RARP :

Type	Protocol	Source MAC Address	Destination MAC Address	Modify	Delete
There is no data, please add one first.					

PORT FORWARDING

Status
Network
Security
Application
Administration
Help

MultiCast

BPDU

DNS Service

Port Forwarding

Port Forwarding

Enable

Name

Protocol TCP

WAN Host Start IP Address

WAN Host End IP Address

WAN Connection

WAN Start Port (1 ~ 65535)

WAN End Port (1 ~ 65535)

LAN Host IP Address

LAN Host Start Port (1 ~ 65535)

LAN Host End Port (1 ~ 65535)

[Add](#)

[Help](#)

[Logout](#)

Enable	Name	WAN Host Start IP Address	WAN Start Port	LAN Host Start Port	WAN Connection	Modify	Delete
	Protocol	WAN Host End IP Address	WAN End Port	LAN Host End Port	LAN Host Address		
There is no data, please add one first.							

PON STATUS

Status | Network | Security | Application | Administration | Help

Device Information

Network Interface

- WAN Connection
- PON Inform**
- PON Alarm

User Interface

EPON State	Registered and certified
OAM_Link	Established
Optical Module Input Power(dBm)	-20.3
Optical Module Output Power(dBm)	1.9
Optical Module Supply Voltage(uV)	3294000
Optical Transmitter Bias Current(uA)	18500
Operating Temperature of the Optical Module(°C)	29

Help

Logout

Refresh

USER INTERFACE

Status | Network | Security | Application | Administration | Help

Device Information

Network Interface

User Interface

- Ethernet**

Ethernet Port	LAN1
Status	Up/1000Mbps/Full Duplex
MAC Address	e0:67:b3:0f:d6:bb
Bytes Received	1198644
Packets Received	10683
Unicast Packets Received	8728
Multicast Packets Received	591
Error Packets Received	0
Discard Packets Received	0
Bytes Sent	17319704
Packets Sent	15563
Unicast Packets Sent	15433
Multicast Packets Sent	63
Error Packets Sent	0
Discard Packets Sent	0

Help

Logout

Refresh