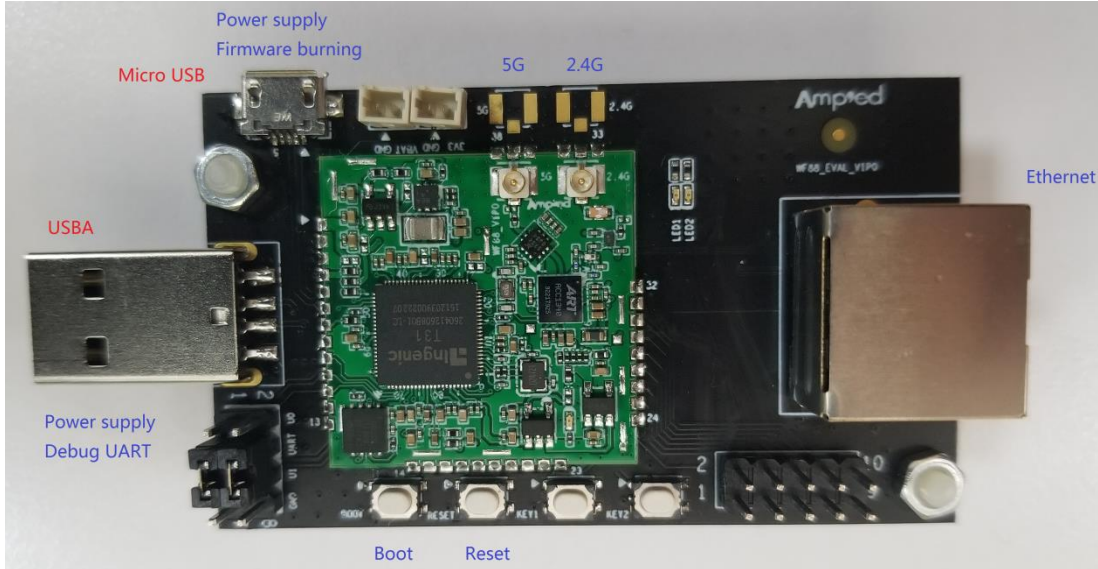


WF88 Evaluation Guide

Amp'ed RF Technology, Inc.

WF88 Evaluation Guide

1. Introduction to WF288 Evaluation Board



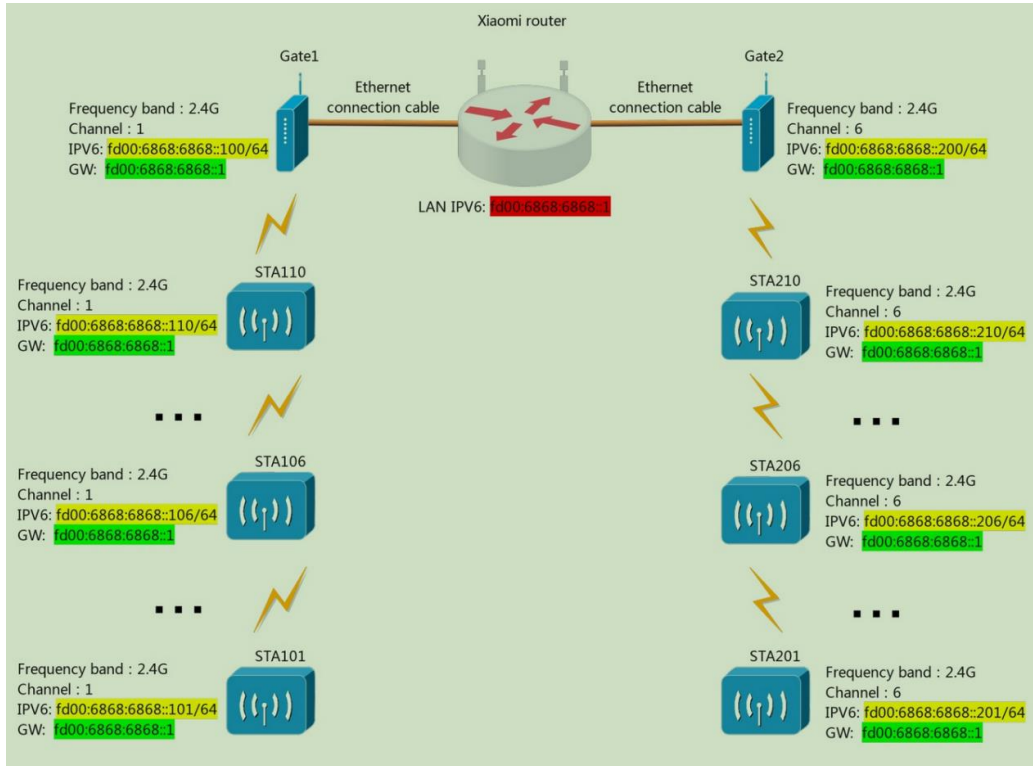
The WF288 is the evaluation board for the WF88 module, and contains the following features:

- Micro USB: firmware update interface and power supply.
- USBA: debugging and serial comm port interface and alternative power supply.
- Boot: boot button for firmware update.
- Reset: system reset button.
- Ethernet interface.

Note: either the Micro USB or USBA can supply power to the board. Both may be used at the same time.

2. Network Connection Example

An example mesh and IPv6 network diagram is shown below:



3. Communications Ping Test

After setting up the above example network or similar network, the following ping communication testing may be performed.

3.1. Ping from mesh network device

3.1.1. Connect the USB port from a Gateway or STA device in the mesh network.

3.1.2. Run a serial debugging terminal.

- Default username is "root"
- Password is "Amped123"
- Serial setup: 115200 baud, N/8/1, no flow control

```
Ingenic-g1_1 login:
Ingenic-g1_1 login: root
login[57]: root login on 'console'
[root@Ingenic-g1_1:~]#
[root@Ingenic-g1_1:~]#
```

- 3.1.3. Use the ping command to check the router, mesh gateway, or STA (mesh node). Their IP addresses must be known before testing.

```
[root@Ingenic-g1_1:~]# ping fd00:6868:6868::1
PING fd00:6868:6868::1 (fd00:6868:6868::1): 56 data bytes
64 bytes from fd00:6868:6868::1: seq=0 ttl=64 time=1.405 ms
64 bytes from fd00:6868:6868::1: seq=1 ttl=64 time=0.569 ms
64 bytes from fd00:6868:6868::1: seq=2 ttl=64 time=0.564 ms

--- fd00:6868:6868::1 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.564/0.846/1.405 ms
[root@Ingenic-g1_1:~]#
```

3.2. Ping from a PC in the network

- 3.2.1. Join a PC into the router’s network used for the mesh network.
- 3.2.2. Use the ping command to check the router, mesh gateway, or STA (mesh node). Their IP addresses must be known before testing.

4. Parameter Configuration Example

- 4.1. From the USBA connection, go to root” system.

```
Ingenic-g1_1 login:
Ingenic-g1_1 login: root
login[57]: root login on 'console'
[root@Ingenic-g1_1:~]#
[root@Ingenic-g1_1:~]#
```

4.2. Configure WF88 mesh parameters

Enter "vi /system/etc/config/meshconfig.ini"

Modify the following parameters:

```
[nodetype]
;ntype = 0 is mesh station, ntype = 1 is mesh gate.
ntype = 1

[wireless]
;Define the mesh name of a network, with a length of no more than 32 characters.
meshname = mymesh2

;Define a communication channel for a mesh network. For example, 2.4G: 1 channel, 7 channel, 11 channel. 5G: 3
channel = 6

[ipverset]
;dhcp = 1 indicates that the mesh terminal(mesh station or mesh gate) obtains an IP address(IPV4 or IPV6) from
;dhcp = 0 indicates that the user needs to manually assign an IP address. Here, the corresponding parameters i
dhcp = 0

;ipver = 1 is using IPV4. Fill in the corresponding parameters in "[ipv4]" below.
;ipver = 2 is using IPV6. Fill in the corresponding parameters in "[ipv6]" below.
;ipver = 3 is using IPV4 and IPV6. Fill in the corresponding parameters in "[ipv4]" and "[ipv6]" below.
ipver = 3

[ipv4]
;IP address of IPV4 of the mesh terminal.
v4ipaddr = 192.168.31.200
;IP subnet mask for IPV4.
v4netmask = 255.255.255.0
;IP gateway for IPV4,where the gateway is the address of the AP or router or server.
v4gateway = 192.168.31.1

[ipv6]
;The IP address of the IPV6 of the mesh terminal, including the subnet prefix.
v6ipaddr = fd00:6868:6868::200/64
;IP gateway for IPV6,where the gateway is the address of the AP or router or server.
v6gateway = fd00:6868:6868::1

~
~
```

4.3. After the configuration is saved and restarted, the changes will take effect.

4.4. Enter "ifconfig". The module's IP address is read.

```

root@ingenic-g1_1:~# ifconfig
br0
  Link encap:Ethernet HWaddr 00:80:E1:6E:75:FD
  inet addr:192.168.31.200 Bcast:192.168.31.255 Mask:255.255.255.0
  inet6 addr: fd00:6868:6868::200/64 Scope:Global
  inet6 addr: fd00:6868:6868::200/64 Scope:Global
  inet6 addr: fe80::280:e1ff:fe6e:75fd/64 Scope:Link
  UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
  RX packets:2315 errors:0 dropped:0 overruns:0 frame:0
  TX packets:34 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:0
  RX bytes:107606 (105.0 KiB) TX bytes:2016 (1.9 KiB)

eth0
  Link encap:Ethernet HWaddr 7E:A2:44:9E:6A:81
  inet6 addr: fe80::7ca2:44ff:fe9e:6a81/64 Scope:Link
  UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
  RX packets:2315 errors:0 dropped:0 overruns:0 frame:0
  TX packets:37 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:1000
  RX bytes:140086 (136.8 KiB) TX bytes:2710 (2.6 KiB)

lo
  Link encap:Local Loopback
  inet addr:127.0.0.1 Mask:255.0.0.0
  inet6 addr: ::1/128 Scope:Host
  UP LOOPBACK RUNNING MTU:65536 Metric:1
  RX packets:0 errors:0 dropped:0 overruns:0 frame:0
  TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:0
  RX bytes:0 (0.0 B) TX bytes:0 (0.0 B)

mesh0
  Link encap:Ethernet HWaddr 00:80:E1:6E:75:FD
  inet6 addr: fe80::280:e1ff:fe6e:75fd/64 Scope:Link
  UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
  RX packets:0 errors:0 dropped:0 overruns:0 frame:0
  TX packets:2317 errors:0 dropped:0 overruns:0 carrier:0
  collisions:0 txqueuelen:1000
  RX bytes:0 (0.0 B) TX bytes:214076 (209.0 KiB)

```

4.5. Check the new settings with a ping command to other modules in the network.

```

--- 192.168.31.1 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.519/0.566/0.638 ms
[root@Ingenic-g1_1:~]# ping fd00:6868:6868::1
PING fd00:6868:6868::1 (fd00:6868:6868::1): 56 data bytes
64 bytes from fd00:6868:6868::1: seq=0 ttl=64 time=1.405 ms
64 bytes from fd00:6868:6868::1: seq=1 ttl=64 time=0.569 ms
64 bytes from fd00:6868:6868::1: seq=2 ttl=64 time=0.564 ms

--- fd00:6868:6868::1 ping statistics ---
3 packets transmitted, 3 packets received, 0% packet loss
round-trip min/avg/max = 0.564/0.846/1.405 ms
[root@Ingenic-g1_1:~]#

```

5. Revision History

Date	Revision	Description
3, May, 2023	1.0	Initial version
25, May, 2023	1.1	Update password and serial setup defaults