OpenNSL
Release Note
V1.2
(AGC7648)

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Signature of Approval

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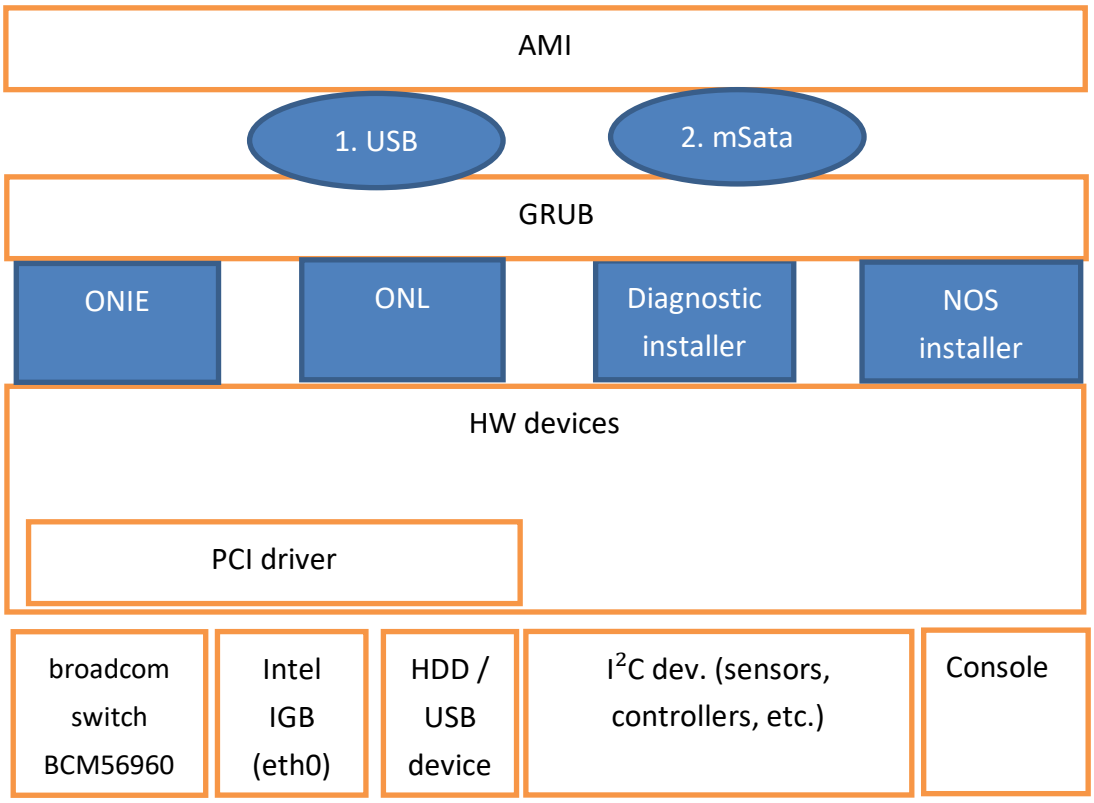
Contents:

Revision History

Date	Version	Author	Comment
08/04/2017	V1.0	Hans Tseng	1. First edition 2. Released the opennsl package: `opennsl-agc7648_3.3.0.3_amd64.deb` 3. Base on the opennsl 3.3.0.3
08/09/2017	V1.1	Hans Tseng	1. Add the feature list
10/19/2017	V1.2	Hans Tseng	1. Release OpenNSL debian package version 3.3.0.2-1 2. Add the opennsl_rc.soc loading option while initialization 3. Reset the TCAM while initializing Broadcom ASCI 4. Provide the how to speed down to 1G in the software feature support.

1. General description

The switch device is pre-installed ONIE in mSata storage; user can access system either by console port. BIOS is AMI BIOS, a bunch of system messages are shown in the console while booting. The Diagnostic program on ONIE installer fully leverages BCM shell by adding one extra menu specific to the device. And the ONL base on the ONL github commit ID “add948d33f305d41961ebf07b3983cdd0fb5f238” to develop. The conceptual SW block diagram is as below:



Then boot the system can through console port press <DEL> or <ESC> key to select the boot mode (the boot option priority is 1. mSATA 3ME , 2. UEFI: Built-in EFI Shell)

Console port settings is: 115200, n, 8, 1

The versions of main software components used in system are listed as below:

ONL kernel: 3.16.39

ONL OS : Debian Jessie

2. Base Hardware information

Main Chip	Company	Description
Intel Rangeley C2538 -1.7GHz	*Intel*	X86 CPU
BCM88375	*Broadcom*	Switch Controller
DDR3 ECC SO-DIMM		System Memory
16MB SPI NOR Flash *2		Flash ROM
mSATA SSD		Storage

3. ONL

Open Network Linux (ONL) is a Linux distribution for bare metal switches. ONL builds an ONIE-compatible installer and a switch image which contains a complete Debian distribution with added drivers and configuration for running on bare metal switches.
While logging ONL via enter username “root” and the password “onl”. Please visit https://github.com/opencomputeproject/OpenNetworkLinux to get more information.

4. Install OpenNSL Package

4.1 Download package

Download the package to the switch device and here is an examples for using tftp tool to download package

```
root@localhost:~# tftp IPaddress
tftp> binary
tftp> get opennsl-agc7648_3.3.0.3_amd64.deb
tftp> quit
```

4.2 Install the package

```
root@localhost:~# dpkg -i opennsl-agc7648_3.3.0.3_amd64.deb
```

Note: It may be necessary to run the following command before installing

OpenNSL because sometimes the ONIE install leaves some packages in a half-configured state:

```
dpkg --configure –a
```

4.3 Insert kernel module

```
root@localhost:~# mknod /dev/linux-kernel-bde c 127 0
root@localhost:~# mknod /dev/linux-user-bde c 126 0
root@localhost:~# mknod /dev/linux-bcm-knet c 122 0
root@localhost:~# insmod linux-kernel-bde.ko
root@localhost:~# insmod linux-user-bde.ko
root@localhost:~# insmod linux-bcm-knet.ko use_rx_skb=1
```

4.4 opennsl.cfg

The opennsl.cfg file saves the configuration setting which needed during initializing the Broadcom ASIC . The opennsl.cfg file is located in the /etc/opennsl folder and we provide the some opennsl.cfg files to setting different port speed. The followings steps show how to set different port speed.

```
root@localhost:~# cd /etc/opennsl
```

- set port speed to 100G

```
root@localhost:~# cp -af opennsl_100G.cfg opennsl.cfg
```

breakout the port speed to 25G

```
root@localhost:~# cp -af opennsl_25G.cfg opennsl.cfg
```

- breakout the port speed to 10G

```
root@localhost:~# cp -af opennsl_10G.cfg opennsl.cfg
```

- check the port status

```
root@localhost:~# cd - && ./example_drivshell
```

4.5 opennsl_rc.soc

We provided the setting command file,opennsl_rc.soc, in the beginning of bringing up Broadcom ASIC. The fopennsl_rc.soc file located in the /etc/opennsl folder and follow example show how to use opennsl_rc.soc to enable auto-negotiation then the port will detect 1G speed sfp devices.

```
# ready to edit the opennsl_rc.soc file
  root@localhost:~# vim /etc/opennsl/opennsl_rc.soc

#add the following commands
    linkscan off
    port xe1-xe10 An=on
    linkscan on

# save the opennsl_rc.soc
```

Then the commands in the opennsl_rc.soc will be execute while initializing the Broadcom ASCII, the port xe1 to xe10 will detect the 1G sfp devices.

5. Software Features support

<table>
<tr><th>Specification</th><th>Version</th><th>Date</th><th>Description</th></tr>
<tr><td>This released package is base on the Broadcom OpenNSL 3.3.0.3 , please the visit opennels github https://github.com/Broadcom-Switch/OpenNSL to get the more detail information and limitation. If more information or referenced documentation are needed please contact the Broadcom.

Broadcom supports those modules which listed in the following table.
<table>
<tr><td>l2</td><td>link</td><td>rx</td><td>tx</td></tr>
<tr><td>port</td><td>switch</td><td>vlan</td><td>stat</td></tr>
<tr><td>l3</td><td>stg</td><td>cosq</td><td>trunk</td></tr>
<tr><td>vxlan</td><td>mirror</td><td>policer</td><td>field</td></tr>
<tr><td>multicast</td><td>Qos</td><td>vswitch</td><td></td></tr>
</table>
</td><td>3.3.0.3</td><td>08/04/2017</td><td></td></tr>
<tr><td>How to speed down to the 1G bandwidth:
1. Using driver_shell to enable the auto negotiation. Here is an example to show to set port xe1 can detect 1G sfp devices

<pre>
#enable port xe1 auto negotiation
  drivshell> port xe an=on

using “ps” to show if 1G devices is detected?
  dirvshell> ps
ena/   speed/ link auto   STP   lrn inter   max loop
port link   duplex scan neg?   state   pause discrd ops   face frame back
</pre>
</td><td>3.3.0.3-1</td><td>10/19/2017</td><td></td></tr>
</table>

xe1(1) up 1G FD SW Yes Forward None FA KX 16360 2. Implement the opennsl_port_autoneg_get() in to your source, please visit the web site to get more detail imformation http://broadcom-switch.github.io/OpenNSL/doc/html/group__port.html#ga8f401c22494ca8f7dd61e56dcfe6bfad			

6. New Features support

Features Description	SKU	Requested by	Available Version	Date	Status	Reference

7. Known Bugs and Limitations

Bug ID/Reporter		Problems	Version	Open Version	Comments
1.					
2.					

8. Description of Bug Fixed

Diagnostic:

Bug ID/Reporter		Description	Fixed Version	Open Date	Close Date	Status
1						
2						

Support

Please email to hans.tseng@delta.com.tw or call +886-2-87973250 ext 3046 for DNI support.