OpenNSL
Release Note
Ver. 1.4
(AG5648)

Author: BU3-SW2 working Group

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Signature of Approval

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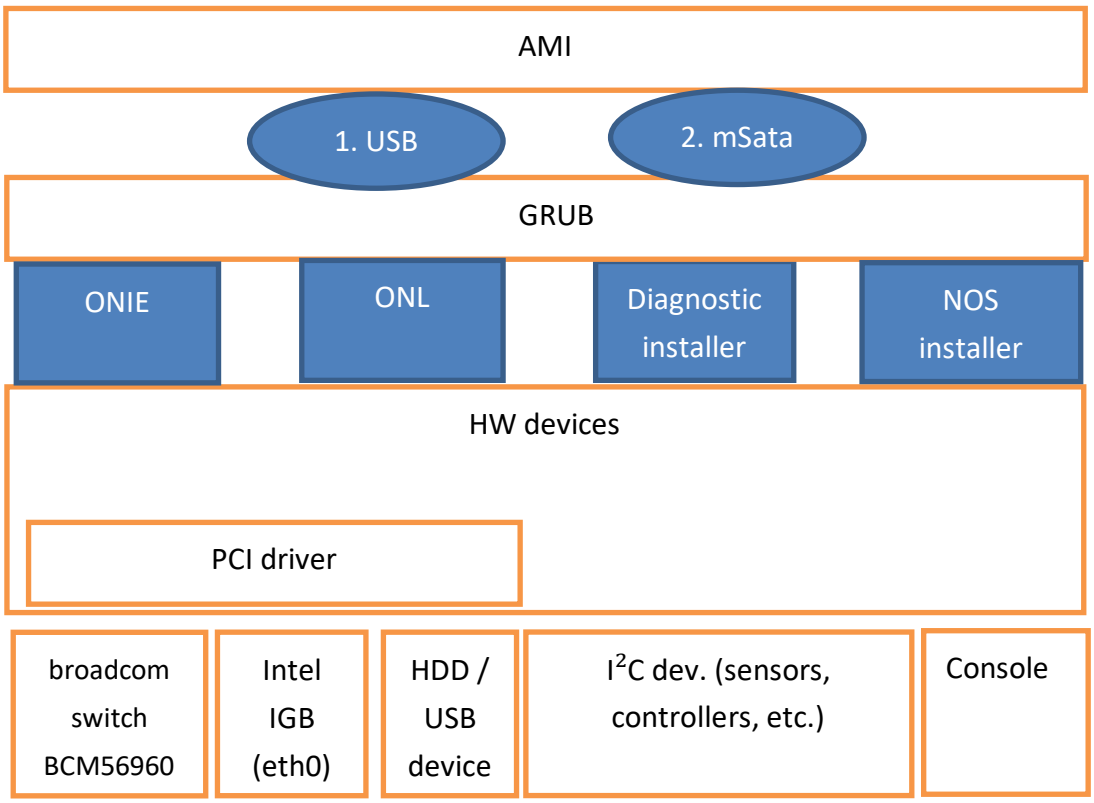
Contents:

Revision History

Date	Version	Author	Comment
07/06/2017	v.1.0	Hans Tseng	1. First edition 2. Base on the opennsl 3.3.0.2 3. Version: OpenNSL_AG5648-3.3.0.2-1.deb
07/12/2017	v.1.1	Hans Tseng	1. Released the opennsl package OpenNSL_AG5648-3.3.0.2--2.deb 2. Fix the wrong share lib of libopennsl.so.1
08/10/2017	v.1.2	Hans Tseng	1. Add features list
09/08/2017	V1.3	Hans Tseng	1. update the ag5648 opennsl package to version 3.3.0.3 2. add the rcload to load soc file 3. disable the low power mode while bring up switch

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
BCM56960	*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”

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_AG5648-3.3.0.3-1.deb
tftp> quit
```

4.2 Install the package

```
root@localhost:~# dpkg -i OpenNSL_AG5648-3.3.0.3-1.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
```

- 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 breakout 100G port to 4x25G.

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

#add the following commands
    linkscan off
    port hg0 enable=false
    port hg0 lanes 1
```

```
port hg0-hg3 speed=25000
port hg0-hg3 enable=true
linkscan spbm=hg0-hg3
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 hg0 will split out four 25 ports.

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 3.3.0.2 , 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 module which listed in the following tables.
<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>MPLS</td><td></td></tr>
</table>
</td><td>3.3.0.2-1</td><td>07/13/2017</td><td></td></tr>
<tr><td>1. Provided the rcload file which located at /etc/opennsl/opennsl_rc.soc and it will be loaded while execute the opennsl example program. Please see the opennsl_rc.soc file which is included some examples code.</td><td>3.3.0.3-1</td><td>09/08/2017</td><td></td></tr>
</table>

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.