HSBUV Board with Nuvoton NPCM7mnx RunBMC module
Quick (Standalone) Setup Guide

This Quick Setup guide describes how to set up the NPCM7mnx HSBUV Board + Nuvoton RunBMC module.

A. HSBUV + Nuvoton RunBMC module Overview

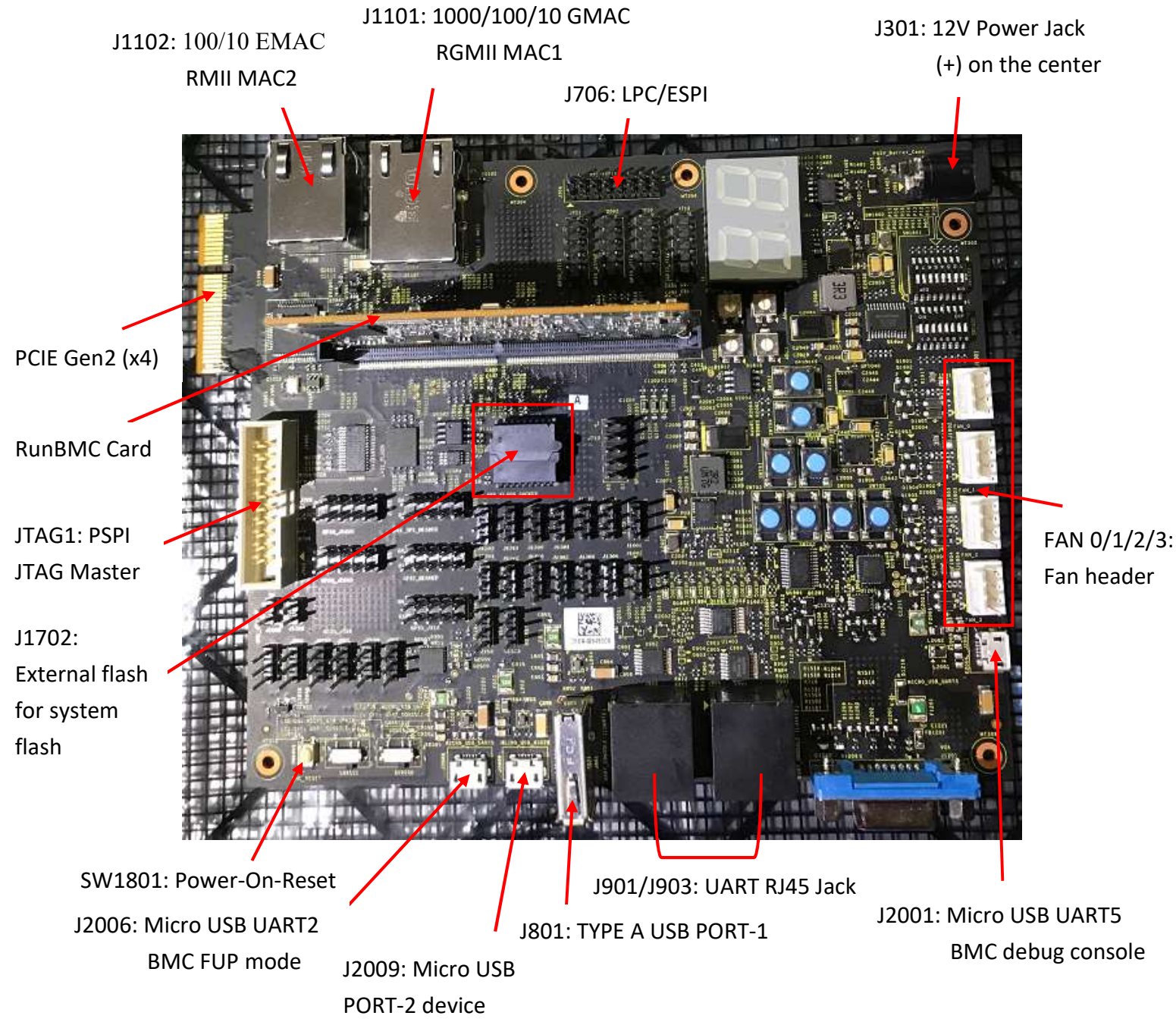


Figure 1: Connectors on the HSBUV Board

Note: Instruction refer to Figure 1, above.

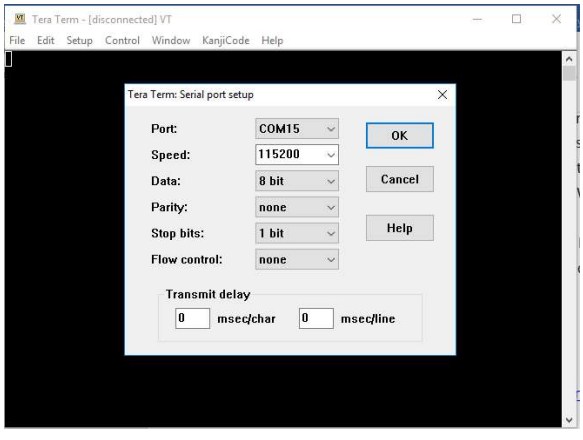
- Power-On and Reset:
  a. Connect the 12V power supply to power jack J301. The power supply should be 12V and at least 2A; the jack should be 2.5x 5.5 x9.5mm in diameter
  b. Press and release PWR-ON-RST (SW1801) push-button.

- USB-to-UART5 for BMC debug console:
  a. Download and install the USB-to-UART driver from:
  http://www.ftdichip.com/Drivers/VCP.htm
  according to the host OS.
  b. Connect a mini-USB cable between the PC host and HSBUV J2001. J2001 is Micro_USB_UART5.
  connector to the Serial Interface (SI2) of the BMC. Uboot and Linux terminal messages are sent though this port.
  c. Wait for the FTDI driver to be installed automatically. The COM port of number is assigned automatically.
  d. Verify that one green power LED (D2008) is ON.

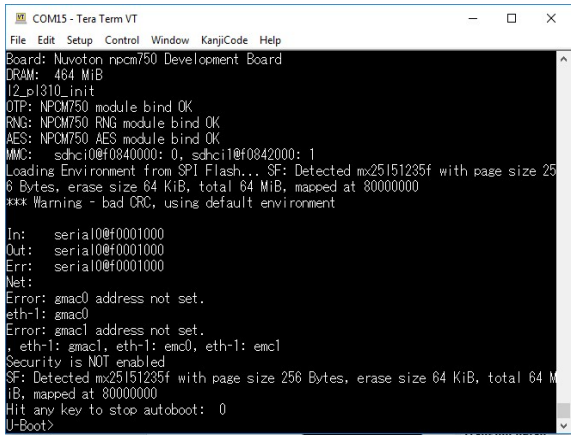
- Terminal:
  a. Open a terminal (e.g., Tera Term version 4.87) and set the correct COM port number assigned by the FTDI driver (in Step 2c).
  The COM port should be configured as follows:
  115200 Kbps, 8 bit, 1 stop-bit, no parity no flow control.
  b. Press and release the PWR-ON-RST (SW1801) push-button to issue a Power-On reset.
  c. Verify that the boot block, Uboot and Linux versions are up-to-date. Check with Nuvoton support for the most recent versions.

Figure 2: boot into boot block, Uboot

Tera Term Serial port setting:



boot into Uboot:

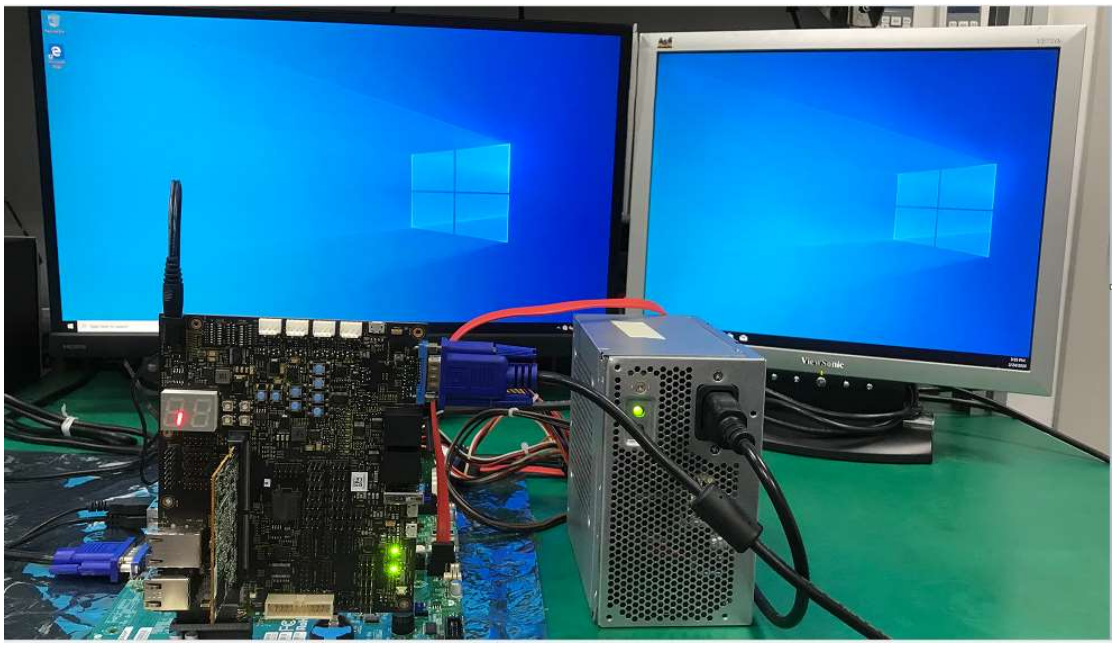


- The PCI-Express Interface which supports a PCIE Gen 2 (x4) connection (Note:). This interface shall be insert the system MB of PCIe slot for VGA display mailbox function. These signals are expected to be dedicated to PCIe functionality and should not offer a secondary function.

Note:

- Only x1 lane is been used.
- RunBMC can be used as a secondary video card since RunBMC card does not include on-board VGA BIOS and since MB does not include Matrox VGA BIOS.

Figure 3: HSBUV + RunBMC module boot into Win 10, the VGA display is ok



B. Build OpenBMC

https://github.com/Nuvoton-Israel/openbmc/tree/runbmc

➢ How to Build

- Ubuntu 18.04 as example

  $ sudo apt-get install -y git build-essential libsdl1.2-dev texinfo gawk chrpath diffstat

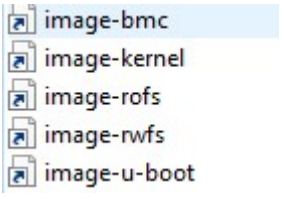
  $ git clone -b runbmc --single-branch https://github.com/Nuvoton-Israel/openbmc

  $ cd opebnmc

  $. setup buv-runbmc

  $ bitbake obmc-phosphor-image

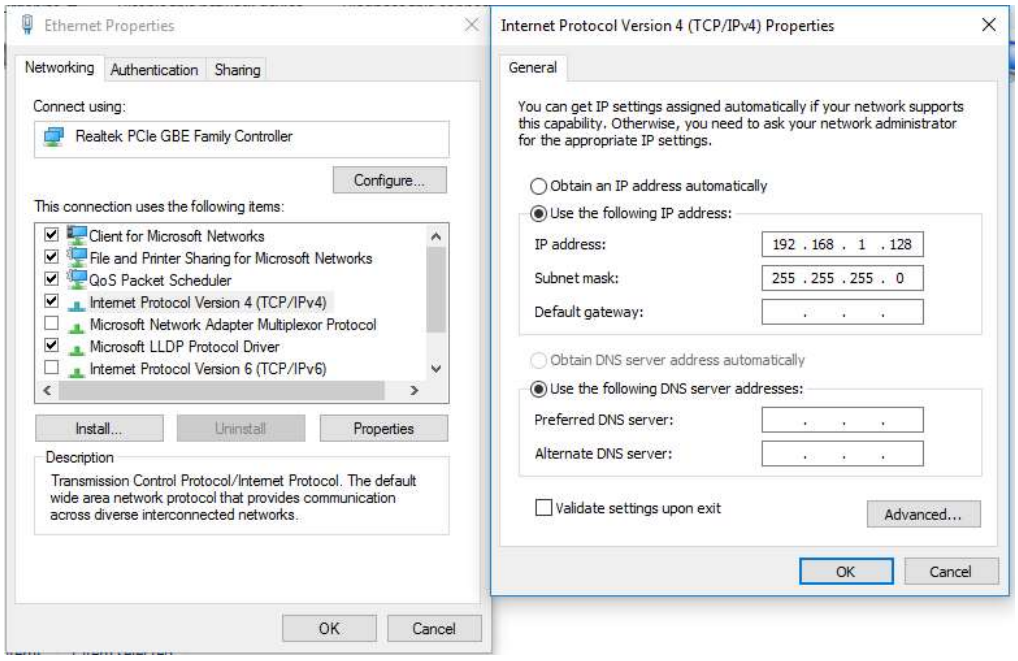
- If built successfully, you will find images in openbmc/build/buv-runbmc/tmp/deploy/images/buv-runbmc/



➢ How to flash image-bmc

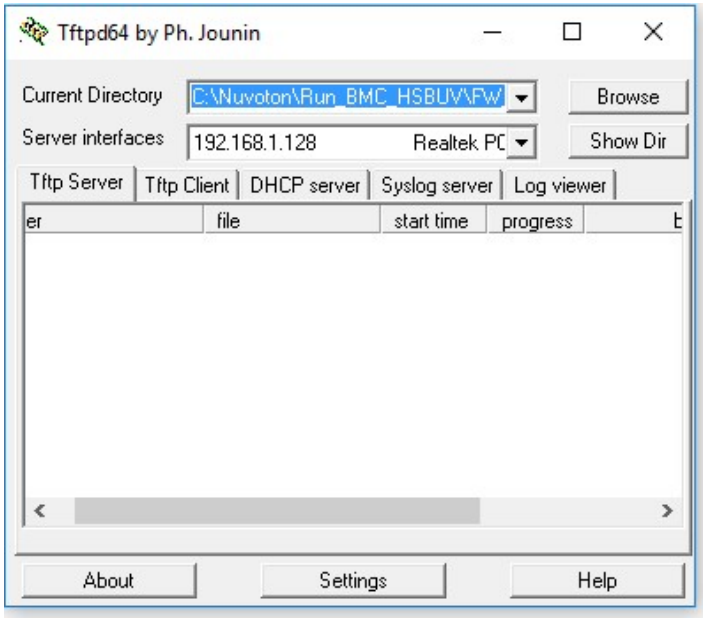
- BMC FW update over u-boot TFTP
  - Setup IP Environment:

    NB IP: 192.168.1.128



    HSBUV IP: 192.168.1.15

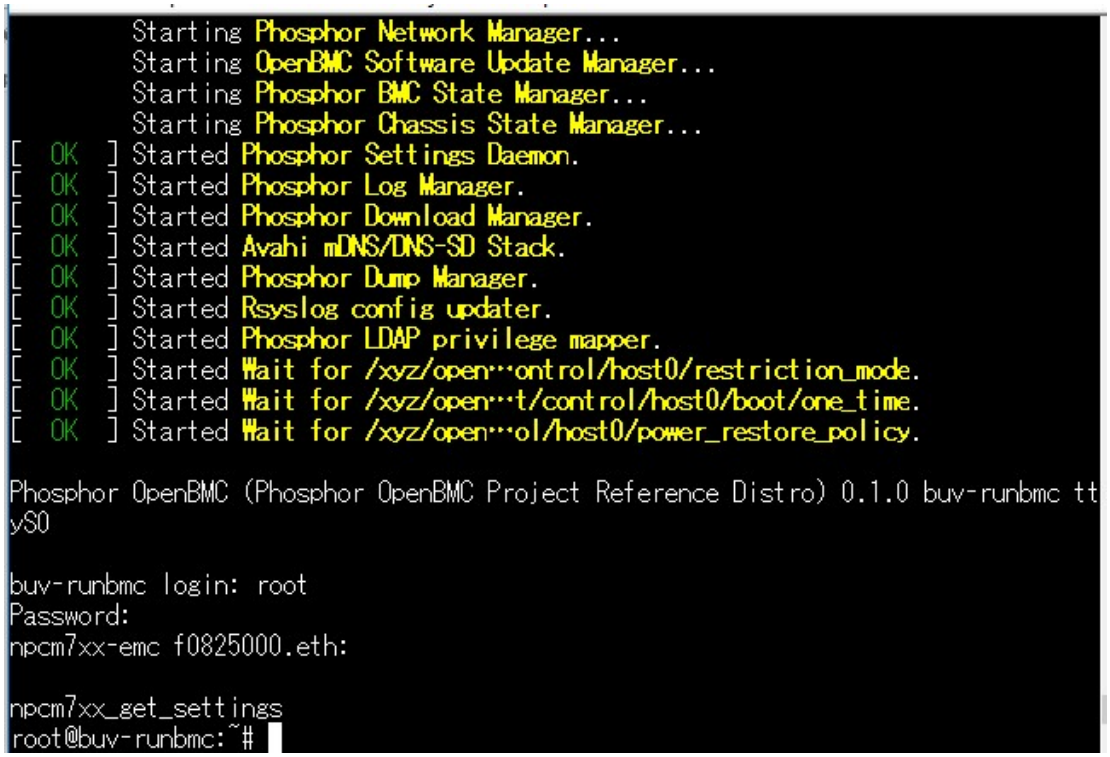
- Put image-bmc into your tftp server IP:



- Update u-boot env with https://github.com/Nuvoton-Israel/nuvoton-info/blob/master/npcm7xx-poleg/evaluation-board/sw_deliverables/uboot_env_parameters.txt
  (please make sure the serverip is your tftp server)
- Input command in u-boot console:
  U-Boot> run ftp_prog; reset

```
U-Boot>run ftp_prog; reset
mdio_register: non unique device name 'emc0'
mdio_register: non unique device name 'emc1'
Speed: 1000, full duplex
Using gmac0 device
TFTP from server 192.168.1.128; our IP address is 192.168.1.15
Filename 'image-bmc'.
Load address: 0x10000000
Loading: ##################################################################
         ##################################################################
```

- Update fw done and boot into OpenBMC:
  - Username: root
  - Password: 0penBmc

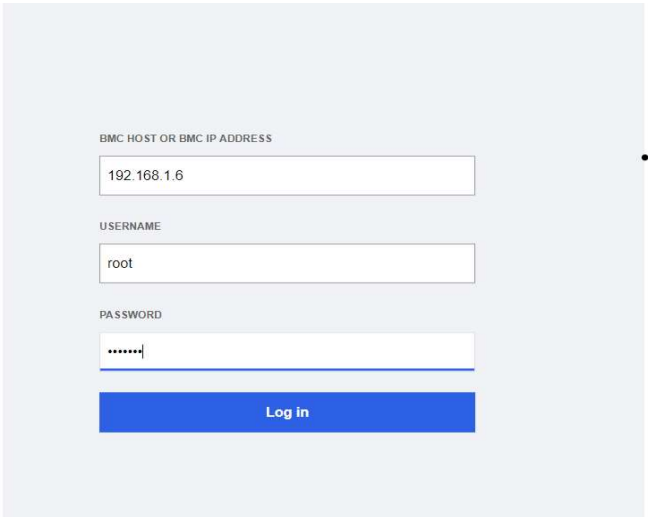


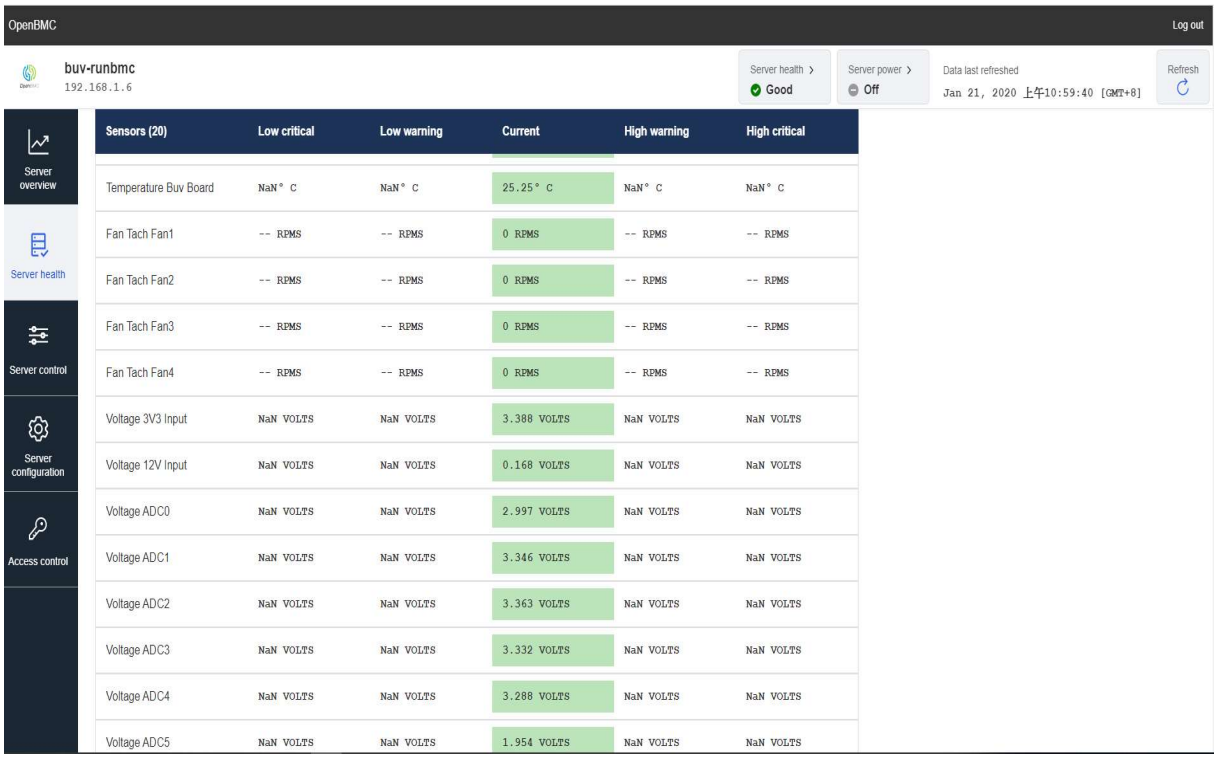
C. OpenBMC WebUI

https://<BMC_IP>

Username: root

Password: 0penBmc





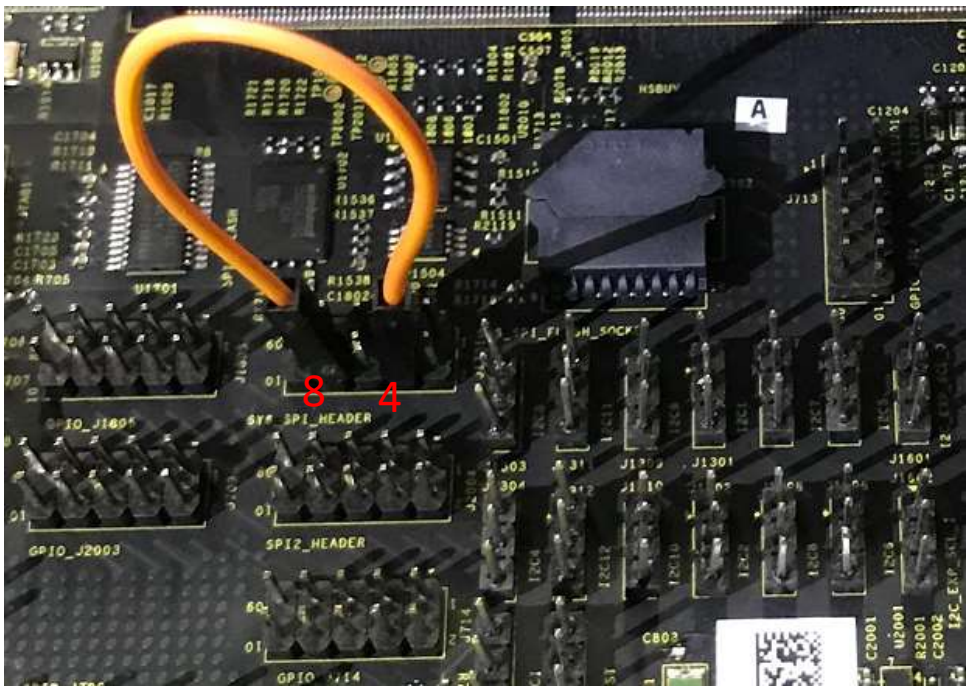
- BMC FW update over OpenBMC

https://github.com/Nuvoton-Israel/openbmc/tree/runbmc/meta-quanta/meta-olympus-nuvoton#bmc-firmware-update

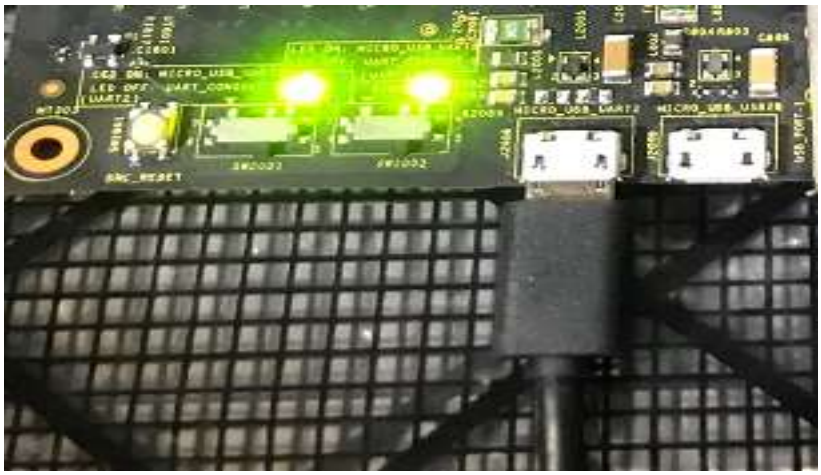
D. FUP mode for emergency firmware update (Boot-Block and Uboot)

Steps:

1. Remove HSBUV board AC Power 12V(J301) and Micro USB UART - BMC Debug UART (J2001)
2. Connects pin8 and pin4 of J1701 header

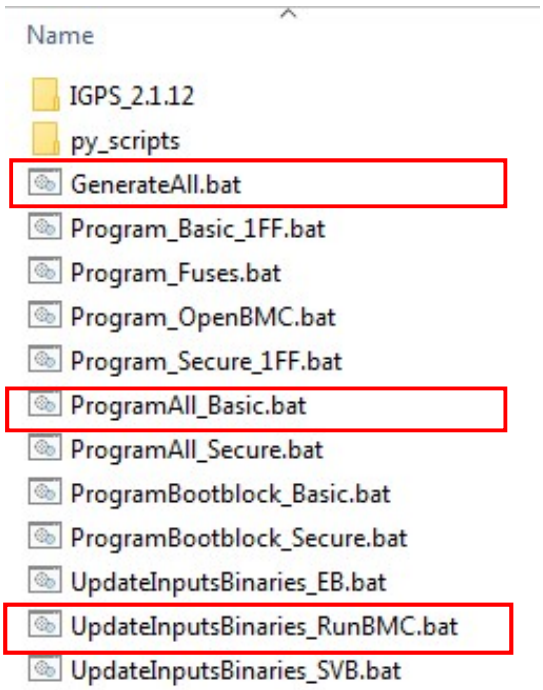


3. Connects USB cable to Micro USB UART - BMC FUP mode (J2006)



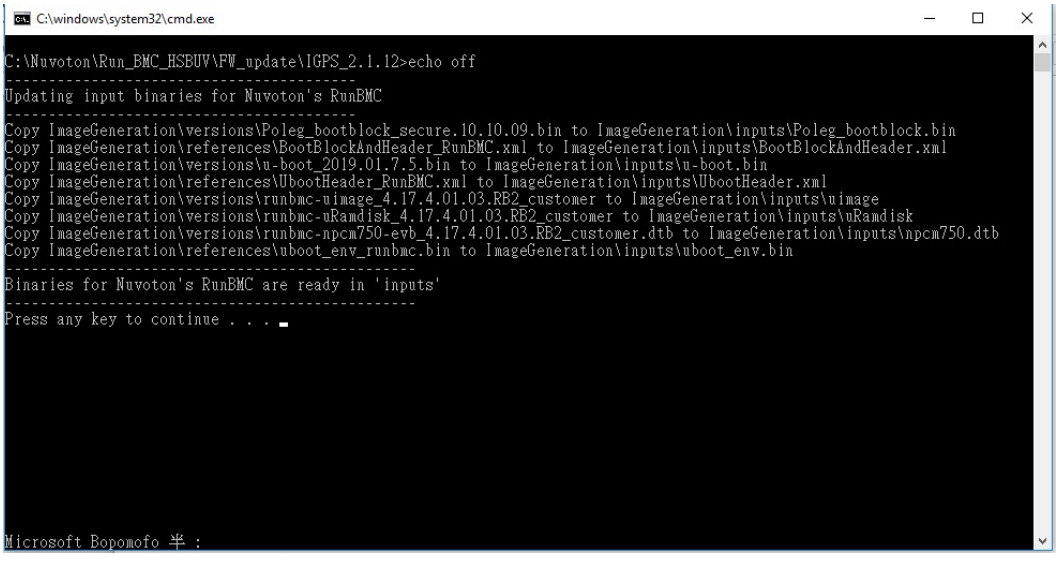
4. Recovery BMC over IGPS:
   https://github.com/Nuvoton-Israel/igps

Programmer fw list (.bat file)

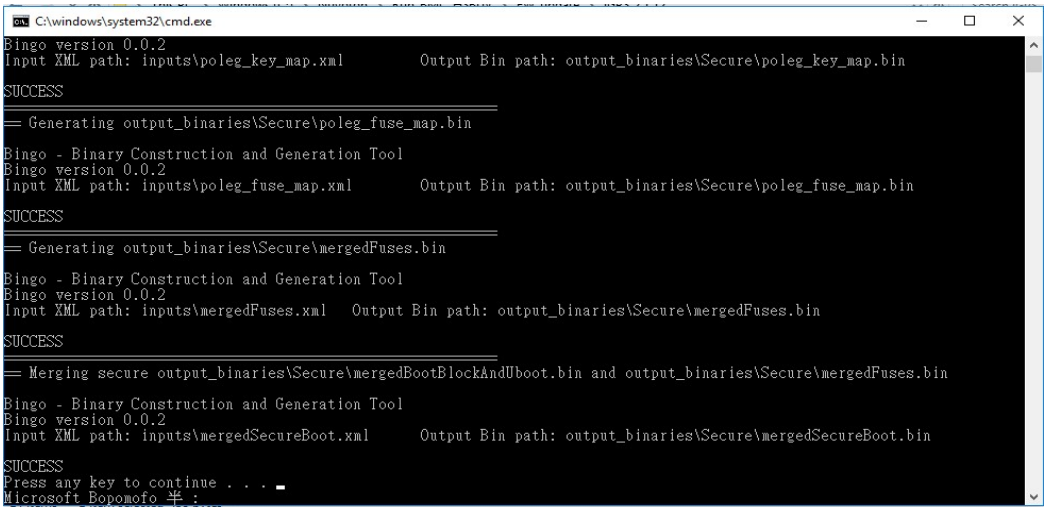


Steps:

(1) Run UpdateInputsBinaries_RunBMC.bat



(2) Run GenerateAll.bat



(3) Run ProgramAll_Basic.bat