

# Using the MinnowBoard Max Flash Utility

The flash utility is a UEFI application that can be run from the UEFI shell of the MinnowBoard Max to program new firmware images in the flash without the need for external programming hardware (example: DediProg SF-100). This tutorial explains how to use the MinnowBoard Max Flash Utility to flash a new firmware image to the MinnowBoard Max.

The following is the syntax for the MinnowBoard Max Flash Utility to be used from the UEFI Shell command line prompt.

Syntax: `FirmwareUpdateX64 <firmware image>` If flashing from a 64 bit firmware

Or

`FirmwareUpdateIA32 <firmware image>` If flashing from a 32 bit firmware

## Setting up the MinnowBoard Max Flash Utility

1. Copy the firmware image you wish to program onto the MinnowBoard Max, and the `FirmwareUpdateX64.efi` and/or `FirmwareUpdateIA32.efi` application to a storage media device (SD Card, USB Drive, SATA Hard Drive, etc), and place them in the same location.
2. Connect the storage media to the MinnowBoard Max and power on the MinnowBoard Max.

Boot the MinnowBoard Max to the UEFI Shell.

Then type at the prompt: `Exit` to determine the firmware currently running

```
EFI Shell version 2.40 [1.0]
Current running mode 1.1.2
Device mapping table
  fs0      :Removable HardDisk - Alias hd15a0b blk0
            PciRoot(0x0)/Pci(0x14,0x0)/USB(0x0,0x0)/HD(1,MBR,0x00427D1E,0x40,0x1E
AFC0)
  blk0     :Removable HardDisk - Alias hd15a0b fs0
            PciRoot(0x0)/Pci(0x14,0x0)/USB(0x0,0x0)/HD(1,MBR,0x00427D1E,0x40,0x1E
AFC0)
  blk1     :Removable BlockDevice - Alias (null)
            PciRoot(0x0)/Pci(0x14,0x0)/USB(0x0,0x0)
Shell>
Shell> SC in 5 seconds to skip startup.nsh, any other key to continue.
Shell>
Shell>
Shell> exit
```

3. To determine if the current BIOS Firmware is 32 bit or 64 bit the opening front page setup screen should have the BIOS Version string in the 3<sup>rd</sup> line down on the top left of the screen, one of the parameters should be either "X64" or "IA32"

#### 64 Bit Firmware Image

```
Minnowboard Max B3 PLATFORM
Intel(R) Atom(TM) CPU E3825 @ 1.33GHz
MNW2MAX1.X64.0072.D30.1408201534
```

#### 32 Bit Firmware Image

```
Minnowboard Max B3 PLATFORM
Intel(R) Atom(TM) CPU E3825 @ 1.33GHz
MNW2MAX1.IA32.0072.D30.1408201534
```

Note: on BIOS versions prior to .72 this maybe ".86C" instead of ".IA32"

Select **Continue** to boot to the UEFI Shell prompt again.

4. From the Shell prompt, navigate to your storage media (most commonly FS0) by typing `FSx`, where x is replaced by the number from the file system mapping table.
5. Type `LS` to view the directory tree of your storage media.

```
Shell> fs0:PciRoot(0x0)/Pci(0x14,0x0)/USB(0x0,0x0)/HD(1,MBR,0x00427D1E,0x40,0x1E
AFC0)
fs0:\> ls
Directory of: fs0:\

 01/01/01  12:18a <DIR>           16,384  EFI
 08/14/14  08:11p                14,144  FirmwareUpdateIA32.efi
 08/14/14  07:54p                23,040  FirmwareUpdateX64.efi
 08/13/14  01:01p           8,388,608  MNW2CRB1_X64_RELEASE_2014_08_13_1301.bi
n
 08/13/14  01:31p           8,388,608  MNW2CRB1_IA32_DEBUG_2014_08_13_1331.bin
 08/13/14  01:24p           8,388,608  MNW2CRB1_IA32_RELEASE_2014_08_13_1324.b
in
 08/13/14  01:12p           8,388,608  MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin
      6 File(s)  33,591,616 bytes
      1 Dir(s)
```

## Flash Update

### 6. A) Flash Update from a **X64 Firmware Image** (".X64" in the BIOS Version String)

- a. To program the firmware image to the MinnowBoard Max flash, type the following:

— `FirmwareUpdate64 <firmware image>`

1. In this example, the name of the firmware image is  
MNW2CRB1\_IA32\_RELEASE\_2014\_08\_13\_1324.bin so the command entered is  
`FirmwareUpdate64 MNW2CRB1_IA32_RELEASE_2014_08_13_1324`
2. To flash to a 64 Bit image, select the appropriate named .BIN file.

```
fs0:\> ls
Directory of: fs0:\

01/01/01  12:18a <DIR>          16,384  EFI
08/14/14  08:11p                14,144  FirmwareUpdateIA32.efi
08/14/14  07:54p                23,040  FirmwareUpdateX64.efi
08/13/14  01:01p          8,388,608  MNW2CRB1_X64_RELEASE_2014_08_13_1301.bi
n
08/13/14  01:31p          8,388,608  MNW2CRB1_IA32_DEBUG_2014_08_13_1331.bin
08/13/14  01:24p          8,388,608  MNW2CRB1_IA32_RELEASE_2014_08_13_1324.b
in
08/13/14  01:12p          8,388,608  MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin
        6 File(s)  33,591,616 bytes
fs0:\> FirmwareUpdateX64.efi MNW2CRB1_IA32_RELEASE_2014_08_13_1324.bin_
```

### 7. B) Flash Update from a **IA32 Firmware Image** (".IA32" in the BIOS Version String)

- a. To program the firmware image to the MinnowBoard Max flash, type the following:

— `FirmwareUpdateIA32 <firmware image>`

1. In this example, the name of the firmware image is  
MNW2CRB1\_X64\_DEBUG\_2014\_08\_13\_1312.bin so the command entered is  
`FirmwareUpdateX64 MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin`
2. To flash to a 32 Bit image, select the appropriate named .BIN file.

```
fs0:\> ls
Directory of: fs0:\

01/01/01  12:18a <DIR>          16,384  EFI
08/14/14  08:11p                14,144  FirmwareUpdateIA32.efi
08/14/14  07:54p                23,040  FirmwareUpdateX64.efi
08/13/14  01:01p          8,388,608  MNW2CRB1_X64_RELEASE_2014_08_13_1301.bi
n
08/13/14  01:31p          8,388,608  MNW2CRB1_IA32_DEBUG_2014_08_13_1331.bin
08/13/14  01:24p          8,388,608  MNW2CRB1_IA32_RELEASE_2014_08_13_1324.b
in
08/13/14  01:12p          8,388,608  MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin
        6 File(s)  33,591,616 bytes
        1 Dir(s)
fs0:\> FirmwareUpdateIA32.efi MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin_
```

8. Wait until the flash utility has finished updating the firmware image.

**WARNING** Do not power cycle until the FirmwareUpdate utility has finished.

- a. The FirmwareUpdate utility will print out "Update successful" and then the system will automatically shut down after the countdown message "Shutdown system in 5 seconds ...".

```
fs0:\> FirmwareUpdateX64.efi MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin
Intel(R) UDK2014 Firmware Update Utility for the Intel(R) Server Board S1200V3RP

Version 0.97
Copyright(c) Intel Corporation 2006 - 2014

Reading file MNW2CRB1_X64_DEBUG_2014_08_13_1312.bin

Updating Firmware. This may take a few minutes.
.....
.....
.....
.....
.....
.....
Update successful
Shutdown system in 5 seconds ...
```

- b. Power cycle your MinnowBoard Max and it will now be running the new firmware image.