Mustang FPGA download Cable User Guide

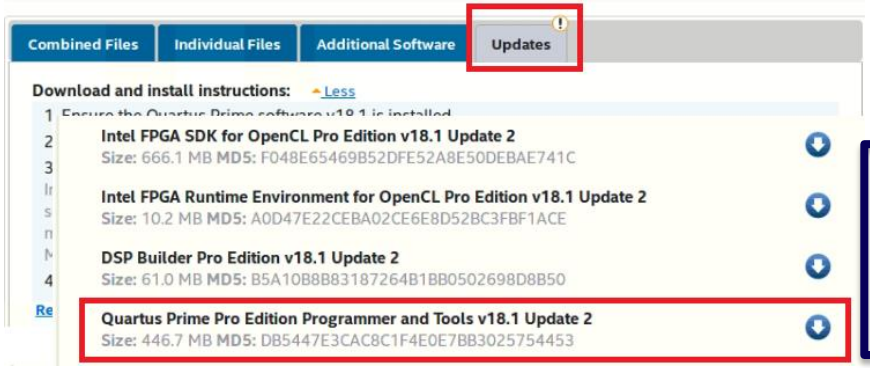
iEi × QNAP

Connect Now, Converge Tomorrow

COMPUTING
NETWORKING
STORAGE

Install Quartus tool

- cd /home/iei/Downloads/
- sudo chmod +x QuartusProProgrammerSetup-18.1.1.263-linux.run
- sudo ./QuartusProProgrammerSetup-18.1.1.263-linux.run
- Installation Directory:
  - /home/iei/intelFPGA_pro/18.1

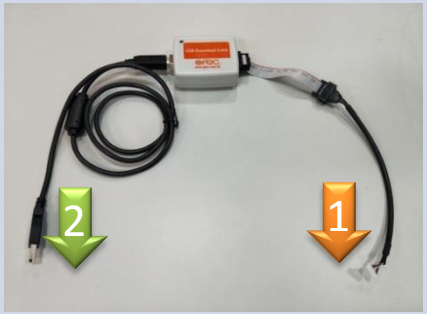


Free Download:

- **Quartus tool:** http://fpgasoftware.intel.com/18.1/?edition=pro&platform=windows&download_manager=dlm3

Connect FPGA Download Cable

- It is mandatory for user to implement FPGA programmer kit to update FPGA bitstreams if your target OpenVINO toolkit version does not match the Mustang-F100-A10 card's bitstreams.

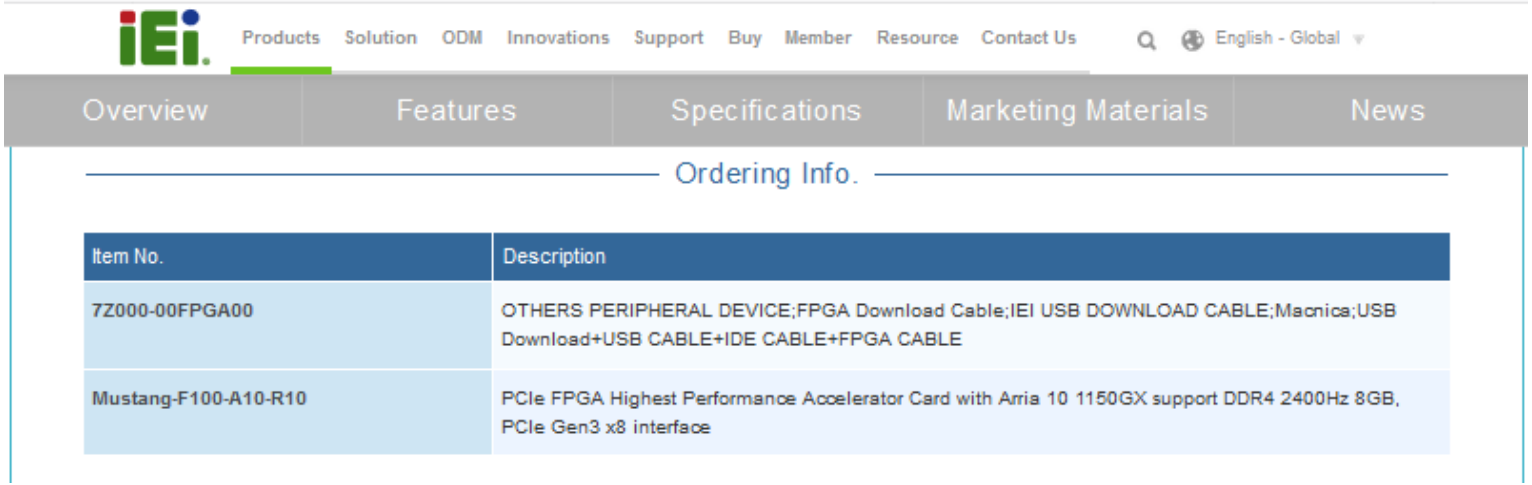
FPGA programmer kit Package is included: - Intel FPGA download cable - USB cable - USB Blaster	Step1 - Connect Intel FPGA download cable to Mustang-F100-A10 FPGA connector	Step2 - Connect USB cable to host PC USB connector
		

FPGA Download Cable Ordering info

Please visit IEI website to purchase FPGA download cable

Item No. : 7Z000-00FPGA00

https://www.ieiworld.com/en/product/model.php?II=614



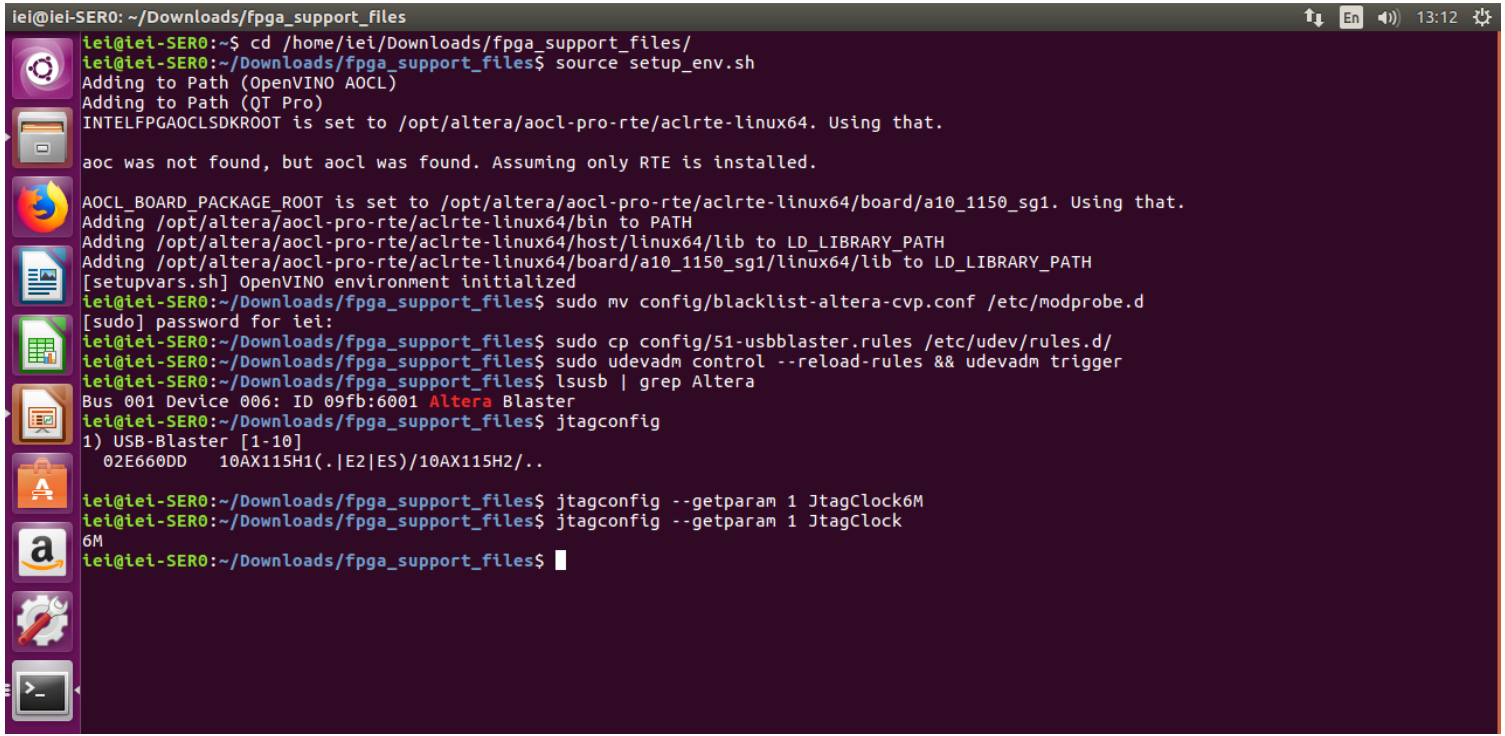
Install BSP Update tool

- cd /home/iei/Downloads/fpga_support_files
- source /home/iei/setup_env.sh
- sudo mv config/blacklist-altera-cvp.conf /etc/modprobe.d
- sudo cp config/51-usbblaster.rules /etc/udev/rules.d/
- sudo udevadm control --reload-rules && udevadm trigger
- lsusb | grep Altera
- jtagconfig
- jtagconfig --getparam 1 JtagClock

Free Download:

- **FPGA driver:** http://registrationcenter-download.intel.com/akdlm/irc_nas/12954/fpga_support_files.tgz

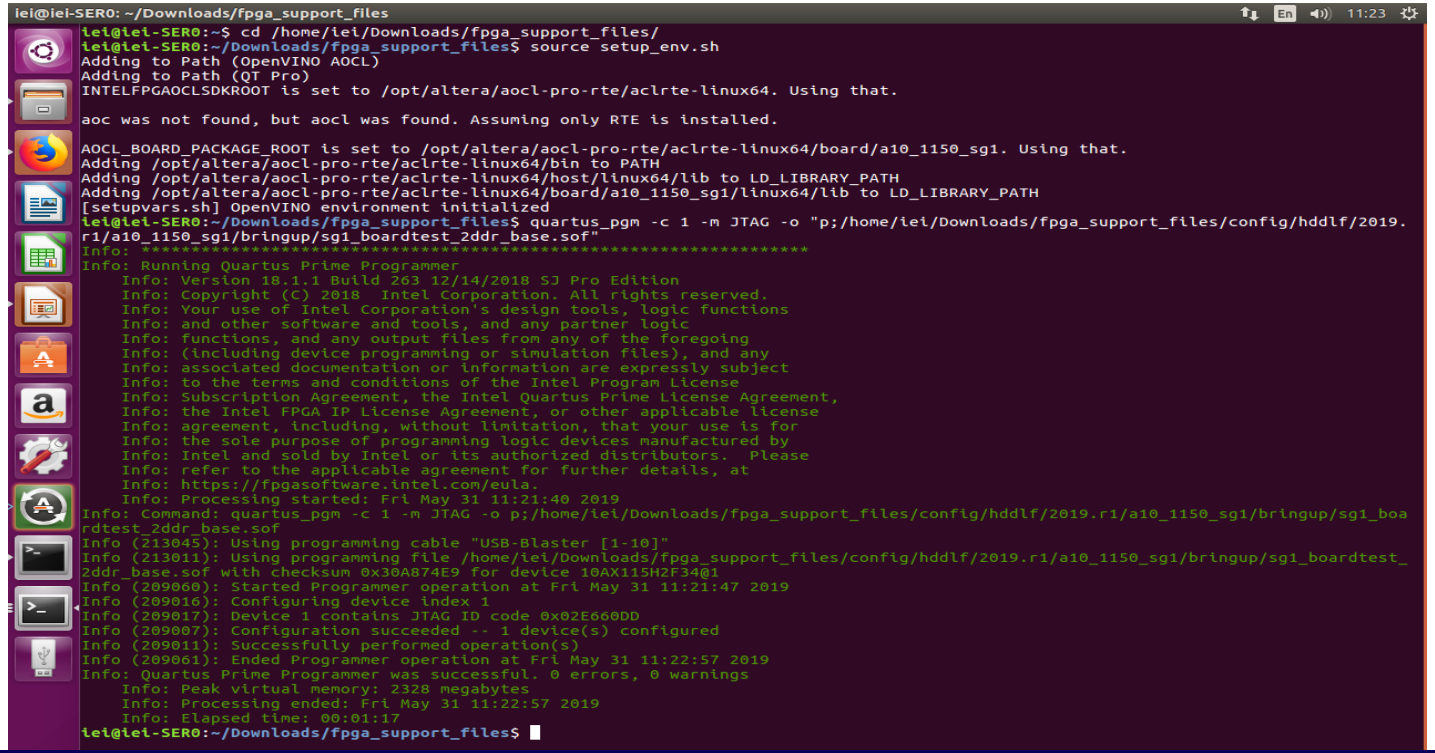
Install BSP Update tool



Update FPGA BSP & Bitstream version

- cd /home/iei/Download/fpga_support_files
- source /home/iei/setup_env.sh
- quartus_pgm -c 1 -m JTAG -o "p;/home/iei/Downloads/fpga_support_files/config/hddlf/2019.r1/a10_1150_sg1/bringup/sg1_boardtest_2ddr_base.sof"
- Reboot

Update FPGA BSP & Bitstream version



Update FPGA BSP & Bitstream version

- cd /home/iei/Downloads/fpga_support_files
- source /home/iei/Downloads/fpga_support_files/setup_env.sh
- export QUARTUS_ROOTDIR=/home/iei/intelFPGA_pro/18.1/qprogramer/
- jtagconfig
- jtagconfig --getparam 1 JtagClock
  - Output: 6M
- cd config/aocl_flash/linux64
- sudo cp -R perl /home/iei/intelFPGA_pro/18.1/qprogramer/linux64/
- aocl diagnose
- aocl flash acl0 /opt/intel/openvino/bitstreams/a10_vision_design_bitstreams/2019R1_PL1_FP16_ResNet_SqueezeNet_VGG_ELU.aocx
- Poweroff

Bitstream
FP11
2019R1_PL1_FP11_AlexNet_GoogleNet
2019R1_PL1_FP11_ELU
2019R1_PL1_FP11_MobileNetCaffe
2019R1_PL1_FP11_MobileNet_Clamp
2019R1_PL1_FP11_ResNet_SqueezeNet_VGG
2019R1_PL1_FP11_RMNet
2019R1_PL1_FP11_SSD300_TinyYolo
FP16
2019R1_PL1_FP16_AlexNet_GoogleNet_SSD300_TinyYolo
2019R1_PL1_FP16_MobileNet_Clamp
2019R1_PL1_FP16_ResNet_SqueezeNet_VGG_ELU
2019R1_PL1_FP16_RMNet
OpenVINO 2019 R1 Bitstream with Topology

Update FPGA BSP & Bitstream version

```
iei@iei-SER0: ~/Downloads/fpga_support_files/config/aocl_flash/linux64
iei@iei-SER0:~$ cd /home/iei/Downloads/fpga_support_files/
iei@iei-SER0:~/Downloads/fpga_support_files$ source setup_env.sh Adding to Path (OpenVINO AOCL)
Adding to Path (QT Pro)
INTELFPGAOCLSDKROOT is set to /opt/altera/aocl-pro-rte/aclrte-linux64. Using that.

aoc was not found, but aocl was found. Assuming only RTE is installed.

AOCL_BOARD_PACKAGE_ROOT is set to /opt/altera/aocl-pro-rte/aclrte-linux64/board/a10_1150_sg1. Using that.
Adding /opt/altera/aocl-pro-rte/aclrte-linux64/bin to PATH
Adding /opt/altera/aocl-pro-rte/aclrte-linux64/host/linux64/lib to LD_LIBRARY_PATH
Adding /opt/altera/aocl-pro-rte/aclrte-linux64/board/a10_1150_sg1/linux64/lib to LD_LIBRARY_PATH
[setupvars.sh] OpenVINO environment initialized
iei@iei-SER0:~/Downloads/fpga_support_files$ export QUARTUS_ROOTDIR=/home/iei/intelFPGA_pro/18.1/qprogramer/
iei@iei-SER0:~/Downloads/fpga_support_files$ jtagconfig
1) USB-Blaster [1-10]
  02E660DD   10AX115H1(.|E2|ES)/10AX115H2/..

iei@iei-SER0:~/Downloads/fpga_support_files$ jtagconfig --getparam 1 JtagClock6M
iei@iei-SER0:~/Downloads/fpga_support_files$ cd config/aocl_flash/linux64/iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_fla
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ sudo cp -R perl /home/iei/intelFPGA_pro/18.1/
logs/        qprogrammer/ uninstall/
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ sudo cp -R perl /home/iei/intelFPGA_pro/18.1/qprogrammer/linux
64/
[sudo] password for iei:
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ aocl diagnose
------------------------------------------------------------------------
Device Name:
acl0

BSP Install Location:
/opt/altera/aocl-pro-rte/aclrte-linux64/board/a10_1150_sg1

Vendor: Intel(R) Corporation

Phys Dev Name  Status   Information

acla10_1150_sg10Passed   Intel Vision Accelerator Design with Intel Arria 10 FPGA (acla10_1150_sg10)
                      PCIe dev_id = 2494, bus:slot.func = 01:00.00, Gen3 x8
                      FPGA temperature = 40.8984 degrees C.

DIAGNOSTIC_PASSED
------------------------------------------------------------------------

Call "aocl diagnose <device-names>" to run diagnose for specified devices
Call "aocl diagnose all" to run diagnose for all devices
```

```
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ aocl flash acl0 /opt/intel/openvino/bitstreams/a10_
a10_dcp_bitstreams/           a10_devkit_bitstreams/        a10_vision_design_bitstreams/
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ aocl flash acl0 /opt/intel/openvino/bitstreams/a10_vision_desi
gn_bitstreams/2019R1_PL1_FP1
2019R1_PL1_FP11_AlexNet_GoogleNet.aocx          2019R1_PL1_FP11_SSD300_TinyYolo.aocx
2019R1_PL1_FP11_ELU.aocx                        2019R1_PL1_FP16_AlexNet_GoogleNet_SSD300_TinyYolo.aocx
2019R1_PL1_FP11_MobileNetCaffe.aocx             2019R1_PL1_FP16_MobileNet_Clamp.aocx
2019R1_PL1_FP11_MobileNet_Clamp.aocx            2019R1_PL1_FP16_ResNet_SqueezeNet_VGG_ELU.aocx
2019R1_PL1_FP11_ResNet_SqueezeNet_VGG.aocx      2019R1_PL1_FP16_RMNet.aocx
2019R1_PL1_FP11_RMNet.aocx
iei@iei-SER0:~/Downloads/fpga_support_files/config/aocl_flash/linux64$ aocl flash acl0 /opt/intel/openvino/bitstreams/a10_vision_desi
gn_bitstreams/2019R1_PL1_FP16_ResNet_SqueezeNet_VGG_ELU.aocx
aocl flash: Running flash from /opt/altera/aocl-pro-rte/aclrte-linux64/board/a10_1150_sg1/linux64/libexec
```