Intel® IXDPG465 Reference Platform Bootloader LSP Release Notes

Version 1.0

May 2006

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Revision History

Date	Revision	Description
May 04, 2006	1.0	Initial version

1 RedBoot* v2.02 Building Step

1) Set up the environment as Intel® IXDP465 Development Platform. You must unzip the following files:

   redboot-intel-ixp4xx-050425.tar.gz
   Redboot-v2_02-epk.zip
   Redboot-v2_02-npe-microcode.zip

2) You must apply the patch for Intel® IXDPG465 Reference Platform:
   Get **ixdpg465_redboot2.02_1.0.1.patch**, **ixdpg465_npe_2.02_1.0.1.patch.**

3) Copy/Store **npe-2.02.epk** and **IxNpeMicrocode.c** into the designated directory. Issuing the following orders:

```
cd redboot-intel-ixp4xx-050425
export
PATH=/opt/redhat/xscale-030422/H-i686-pc-linux-gnulibc2.2/bin/:${PATH}

export TOPDIR=`pwd`
export ECOS_REPOSITORY=${TOPDIR}/packages
export VERSION=current
export BOARD=ixdp465
${ECOS_REPOSITORY}/ecosadmin.tcl add ../npe-2.02.epk
cp ../IxNpeMicrocode.c ./packages/devs/eth/intel/npe/npeDl/v2_01/src

$ patch -p0 < ixdpg465_redboot2.02_1.0.1.patch
patching file packages/hal/arm/xscale/ixdp465/current/cdl/hal_arm_xscale_ixdp465.cdl
patching file packages/hal/arm/xscale/ixdp465/current/include/ixdp465.h
patching file packages/hal/arm/xscale/ixdp465/current/misc/redboot_RAM.ecm
patching file packages/hal/arm/xscale/ixdp465/current/misc/redboot_ROM.ecm
patching file packages/hal/arm/xscale/ixdp465/current/src/ixdp465_misc.c
patching file packages/hal/arm/xscale/ixdp465/current/src/ixdp465_pci.c
$ patch –p0 < ixdpg465_npe_2.02_1.0.1.patch
patching file packages/devs/eth/arm/ixdp465/npe/v2_01/cdl/ixdp465_npe_eth_driver.cdl
patching file packages/devs/eth/intel/npe/common/v2_01/src/if_npe.c
patching file packages/devs/eth/intel/npe/ethMii/v2_01/src/IxEthMii.c
patching file packages/devs/eth/intel/npe/ethMii/v2_01/src/IxEthMii_p.h

$ mkdir ${TOPDIR}/build
$ cd ${TOPDIR}/build
$ ecosconfig new ${BOARD}_npe redboot
```

To build the Read-only-Memory (**ROM)** version:

```
ecosconfig import
${ECOS_REPOSITORY}/hal/arm/xscale/${BOARD}/${VERSION}/misc/redboot_ROM.ecm
ecosconfig tree
make
```

You can get redboot.srec in build/install/bin.

To build the Random Access Memory (**RAM)** version:

```
ecosconfig import
${ECOS_REPOSITORY}/hal/arm/xscale/${BOARD}/${VERSION}/misc/redboot_RAM.ecm
ecosconfig tree
make
```

Version Updates using RedBoot

1) Download RAM version RedBoot to RAM by using the following command:
   load –v redboot_RAM.srec
2) Execute RedBoot using
   go
3) Download ROM version RedBoot to RAM using the following command:
   load –v redboot_ROM.srec –b 0x01600000
4) Program RedBoot ROM version to flash using the following command:
   fis create redboot –b 0x01600000
   You will get the following prompt:
   "An image named 'redboot' exists - continue (y/n)?". Click **y.**
   ... Erase from 0x50000000-0x50080000: ....
   ... Program from 0x01600000-0x01680000 at 0x50000000: ....
   ... Unlock from 0x51fe0000-0x52000000: .
   ... Erase from 0x51fe0000-0x52000000: .
   ... Program from 0x03fe0000-0x04000000 at 0x51fe0000:
   .... Lock from 0x51fe0000-0x52000000:.

2 Steps to Build LSP

You have to install Montavista* Pro 3.1 in your computer and do the following:

1) Get ***lsps-arm_xscale_be-intel-ixdp465-0401718.iso*** from Montavista* or internal website.
2) Use **mvl-update-packages** to install ixdp465 LSP to **/opt/montavista/pro/devkit/lsp/intel-ixdp465-arm_xscale_be**.
3) Copy LSP to your folder, for example, /home/jimmy/work/linux
4) You must apply the patch.
   cd **intetel-ixdp465-arm_xscale_be/linux-2.4.20_mvl31/**
   patch –p1 < ixdpg465_mvl3.1_1.0.1.patch
   The following message will be showed:
   $ patch -p1 <. **ixdpg465_mvl3.1_1.0.1.patch**
   patching file arch/arm/boot/compressed/head-xscale.S
   patching file arch/arm/config.in
   patching file arch/arm/def-configs/ixdpg465
   patching file arch/arm/kernel/bios32.c
   patching file arch/arm/mach-ixp425/arch.c
   patching file arch/arm/mach-ixp425/ixdpg465-pci.c
   patching file arch/arm/mach-ixp425/ixp425-irq.c
   patching file arch/arm/mach-ixp425/Makefile
   patching file arch/arm/tools/mach-types
5) make ixdpg465_config
6) make oldconfig
7) Issue following command:
   i) “make dep”
   ii) “make zImage”
8) You should get zImage under *linux/arch/arm/boot*
9) Copy zImage to your tftp folder.
10) When the Redboot brings up, provide the following command:
    load -r -v -b 0x02000000 smbp/ramDisk
    load -r -v -b 0x01080000 smbp/zImage
    exec 0x01080000 -c "console=ttyS0,115200 devfs=nomount root=/dev/ram initrd=0x02000000,13M ramdisk_size=12288 mem=64M&0x0000000 ip=off"

3 Build Steps for IXDPG465 Reference Platform Intel® IXP400 Software

1) Download the Intel® IXP400 Software Version 2.0 release and related patches from http://www.intel.com/design/network/products/npfamily/ixp400_current.htm
   i) IPL_ixp400AccessLibrary-2_0.zip →IXP400 Software v2.0 source code
   ii) IPL_ixp400NpeLibrary-2_0.zip → IXP400 Software v2.0 npe microcode
   iii) GPL_ixp400LinuxIntegrationPatch-1_3 → IXP400 Software v2.0 integration patch
   iv) GPL_ixp400LinuxEthernetDriverPatch-1_4.zip → IXP400 Software v2.0 Ethernet driver patch
   Follow the instructions in **ixp400LinuxIntegrationPatch-1_3.readme.txt** and **ixp400LinuxEthernetDriverPatch-1_4.readme.txt** procedure.
2) Extract ***IPL_ixp400AccessLibrary-2_0.zip*** and ***IPL_ixp400NpeLibrary-2_0.zip*** to /home/test/<work>. This will generate two new folders: **ixp400_xscale_sw** and **ixp_osal**.
3) Modify **ixp400_xscale_sw/buildUtils/*environment.linux.sh***. Change the related path of linuxbe_KERNEL_DIR and IX_XSCALE_SW
4) Copy ***ixp400_eth.c*** to linux/drivers/net.
5) Copy ***ixp465LinuxKernel-BE-1_3.patch*** and ***ixp400LinuxEthernetDriver-1_4.patch*** **to** <linux> folder and issue the following command:
   patch -p1 < ixp465LinuxKernel-BE-1_3.patch
   patch -p1 < ixp400LinuxEthernetDriver-1_4.patch
6) Apply IXDPG465 patch:
   i) Copy ***ixdpg465_accesslibrary2.0_1.0.1.patch*** to <work>.
      cd <work>.
      patch –p0 < ixdpg465_accesslibrary2.0_1.0.1.patch
   ii) Copy ***ixdpg465_edd_1.4_1.0.2.patch*** to linux/drivers/.
      cd <work>/<linux>/drivers/
      patch –p0 < ixdpg465_edd_1.4_1.0.2.patch
7) Build IXP400 software:
   i) Edit linux source path and **ixp400_software** path in ***environment.linux.sh*.** Make sure **IX_DEVICE=ixp46X**, **IX_PLATFORM=ixdp46x** in <work>/ixp400_xscale_sw/buildUtils/*environment.linux.sh.*
   ii) Issue command:
   "source <work>/ixp400_xscale_sw/buildUtils/environment.linux.sh".
   iii) cd <work>/<linux>. Issue "make menuconfig"→ "System Type" →Build IXP400 Access Library to be checked.
   iv) "Network device support" → Ethernet (10 or 100Mbit) → "Intel IXP400 Ethernet Device support" to be checked.
   v) cd <work>/linux,
   "make", then "make modules".
   vi) cd <work>/ixp400_xscale_sw,
   "make modules `IX_INCLUDE_MICROCODE=1`".
   vii) You can get ixp400.o and ixp400_eth.o.