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Software User's Guide (Linux)

PCIe3IP

PCI Express x 1 to
3 IP (Industry Pack) Bridge

PCIe3IP

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Connection of incompatible hardware is likely to cause serious damage.

Product Description

The PCIe3IP is an Industry Pack (IP) compatible bridge supporting up to 3 IP slots/devices utilizing a single PCIe slot.

For a detailed description of the hardware including register definitions, see HW User Manual, PCIe3IP.

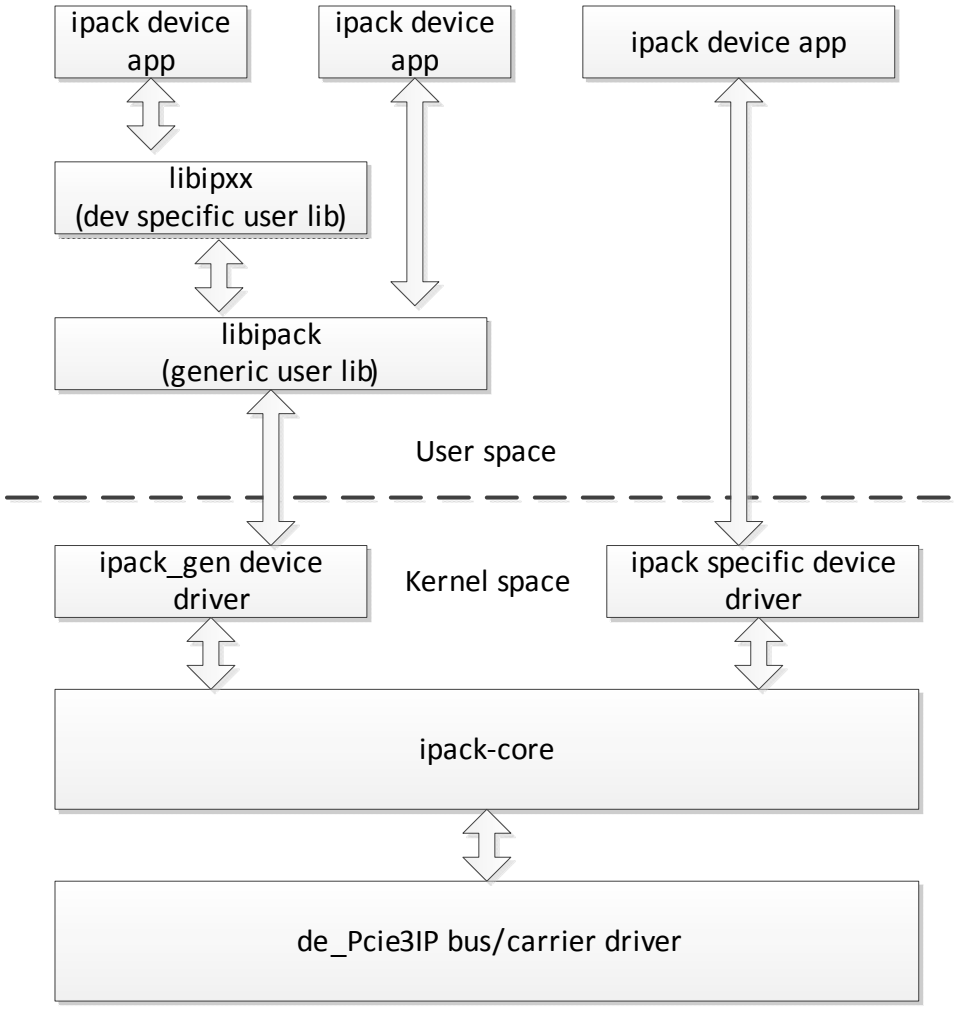
Software Description

The PCIe3IP driver is a Linux bus driver capable of supporting multiple (up to 64) Industry Pack buses/carrier cards. This driver interfaces with the ipack-core Open Source code (ported from 3.5 kernel) to support Industry Pack devices. This Open Source code has been slightly modified, and is included with the tar-ball for this driver.

At a minimum, the ipack-core module must be installed prior to installation of the de_PCIe3IP driver.

A generic IPACK driver (ipack_gen) and user library (libipack) have been developed by Dynamic Engineering. This driver and library may be sufficient for developing user space drivers for a device depending upon the complexity of that device. Other device specific user libraries and kernel drivers are available for Dynamic Engineering Industry Pack modules.

The diagram below illustrates possible layering of Industry Pack components:



The version of this driver is v1.0.0. The driver has been validated on an i7 Ubuntu server running 3.8.0-44 kernel (64 bit) SMP.

Installation

1) Copy ipack.c, ipack.h (ipack-core), de_Pcie3IP.c, and de_Pcie3IP.h (de_Pcie3IP bus/carrier driver) to your module build directory. Invoke the system ñmake.ò Alternatively makefiles for both ipack-core and de_Pcie3IP driver have been included for out of tree kernel module build. If this build method is utilized, cd to the build directory and invoke the script ./build.
2) Copy the resulting ipack.ko and de_Pcie3IP.ko module to the target platform/directory.
3) Copy the startup script bnm to the target.
4) Invoke the script (./bnm), it will perform an insmod of both the ipack-core, and de_Pcie3IP driver. You may invoke this script from the systems rc.local file as well.

Application Programming model

The type of layering chosen dictates the APIs, see diagram above. If a kernel device driver is being developed, it will interface to the carrier via the ipack-core. Please see ipack-core header file (ipack.h) for API details. If a Dynamic Engineering ipack kernel driver is employed, see the SW manual for that device.

To utilize the Dynamic Engineering generic interface, the ipack_gen(eric) driver must be built and installed. The application must then be compiled with libipack. See the SW manual for libipack for additional details.

Further, it is possible that a device specific user library will be employed. This library interfaces with libipack and the generic driver. Refer to the Dynamic Engineering libipxx manual for further information.

Support Contract

Dynamic Drivers are provided AS-IS and sometimes our clients need a little help. Please refer to the support contract page on our website for options about getting help with your driver use and SW development.

http://www.dyneng.com/TechnicalSupportFromDE.pdf

Warranty and Repair

Please refer to the warranty page on our website for the current warranty offered and options.

http://www.dyneng.com/warranty.html

Service Policy

Before returning a product for repair, verify as well as possible that the suspected unit is at fault. Then call the Customer Service Department for a RETURN MATERIAL AUTHORIZATION (RMA) number. Carefully package the unit, in the original shipping carton if this is available, and ship prepaid and insured with the RMA number clearly written on the outside of the package. Include a return address and the telephone number of a technical contact. For out-of-warranty repairs, a purchase order for repair charges must accompany the return. Dynamic Engineering will not be responsible for damages due to improper packaging of returned items. For service on Dynamic Engineering Products not purchased directly from Dynamic Engineering contact your reseller. Products returned to Dynamic Engineering for repair by other than the original customer will be treated as out-of-warranty.

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