



Intel® IXA SDK 3.51 Software Framework Product Release Notes

Use of Software Development Tools on the Intel® IXA SDK 3.51 Software Framework CD-ROM is subject to the terms of the INTEL SOFTWARE LICENSE AGREEMENT on the IXA SDK 3.51 Software Framework CD-ROM. Before using such Tools, you must agree to accept the terms of the INTEL SOFTWARE LICENSE AGREEMENT.

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This version of the Release Notes is up-to-date as of the time of the release. For the latest list of known software problems, please refer to the IXA SDK 3.51 Software Framework Problem Listing that can be found online via Electronic Design Kit (EDK) on Intel Business Link (IBL). If you have an IBL account set up, please access the Network Processing EDK through https://teal.intel.com/scripts-edk/viewer/UI_CLCatalog.asp?edkId=2184. You can also subscribe to this EDK for easier access by clicking on "Add To My EDKs".

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Installation and Build Procedures

1. To install the IXA SDK 3.51 Software Framework CD, run the Setup.exe program located in the top-level directory of the CD-ROM, and follow the instructions. You need to accept the INTEL LICENSE AGREEMENT and select all kit components for installation. It is recommended that you accept the default top-level directory location (C:\IXA_SDK_3.5).
If you already have older versions of the IXA SDK (including the Intel IXP12DE product) installed on your system, do not install the IXA SDK 3.51 on top of these directory structures, use the default location instead.



2. For initial installation and build procedures, follow the instructions in the *Intel® Internet Exchange Architecture (IXA) SDK Software Framework Installation Guide*. For advanced build system instructions for core components, follow the instructions in the *Intel® Internet Exchange Architecture (IXA) SDK Software Framework Getting Started Guide*.

NOTE: All applications developed for the IXDP2401 or IXDP28x1 platforms must have a certain flag defined in the project makefiles, for both the core components and the microblocks.. By default, newly created projects under the WindRiver* Tornado* development environment have the flag defined as `IX_PLATFORM_2400` or `IX_PLATFORM_2800`. For IXDP2401 applications, this value must be changed to `IX_PLATFORM_2401` and for IXDP28x1 applications, this value must be changed to `IX_PLATFORM_2801`. An example of required flag definitions may be found in the makefiles of the application.

NOTE: To use this SDK 3.51 release with the IXDP2401 platform, you need to install Version 1.2 of the Intel® IXA Software Developers Kit (SDK) Tools 3.51 Firmware and Drivers for the IXDP2401 Advanced Development Platform CD-ROM. Versions 1.0 and 1.1 are compatible with SDK 3.1, not this SDK 3.51 release.

Changes from Previous Release

The IXA SDK 3.51 Software Framework release contains the following changes from the previous 3.5 release:

Intel XScale® Core Components

Certain lines of code which were not being compiled (using `#ifdef 0...#endif`) were removed from the file `src\library\xscale\ether_arp\include\ix_cc_arp.h`

IXA SDK 3.5 Files Modified for IXA SDK 3.51 Release

[Appendix D](#) of these Release Notes lists the files which were modified to support the IXA SDK 3.51 release.

New Features in Release 3.5

The IXA SDK 3.5 release contains new features in the following categories:

- Applications
- Core Components
- CP-PDK
- Documentation

Applications

For a complete list of applications supported in this release, see the [Supported Applications](#) section of these Release Notes. The following applications are new or enhanced:

- OC192 POS IPv4/v6 forwarding application on IXDP2800 Advanced Development Platform. It runs on VxWorks.
- 1x10Gig Ethernet IPv4/v6 forwarding application on IXDP2800 Advanced Development Platform. It runs on VxWorks.
- 10x1Gig Ethernet IPv4/v6 forwarding application on IXDP 2800 Advanced Development Platform. It runs on VxWorks and Linux. Core Components are available for this application running in Linux.
- OC192 POS MPLS application on IXDP 2800 Advanced Development Platform. It runs on VxWorks.
- ATM (AAL5) IPv4 Forwarding Application is now available on the IXDP2401 Advanced Development Platform. Only the Linux operating system is supported.
- POS/Ethernet Forwarding application is now available on IXDP2801 Advanced Development Platform. Only the Linux operating system is supported.



- Dual OC-12 POS/Dual Gigabit Ethernet Forwarding application for IXDP2401 now runs on both Linux and VxWorks operating systems. This application also features auto-configuration based on the Baseboard Driver. This application now supports the Gigabit Ethernet Mezzanine Cards.
- Quad Gigabit Ethernet Forwarding application for IXDP2401 now runs on both Linux and VxWorks operating systems. This application also features auto-configuration based on the Baseboard Driver.
- **Removed:** 10x1Gig Ethernet IPv4 forwarding application on simulation. (src/applications/ipv4_forwarder/10gb_ethernet). This is no longer supported as a superset of this application – 10x1 Gig Ethernet IPv4/v6 Forwarding application – running on simulation as well as IXP2800 is now available.

NOTE: All the applications have been tested only on A2 Rev of IXP2800. Support for B0 IXP2800 will be available in an upcoming release. VxWorks* Tornado* version used is 2.2.1. Linux* version is Monta Vista* 3.0. This release supports Windows 2000* and Windows XP*.

Core Components

There is a new core component application running on Linux for using Ethernet with IPv4 and IPv6 on both the IXDP2400 and the IXP2800. This application includes a local stack interface (called the stack VIDD) which supports sending and receiving packets from the local Linux network stack. For instructions on using the Linux core component applications, refer to the *Intel® Internet Exchange Architecture (IXA) SDK Software Framework Getting Started Guide*.

A new core component for MPLS has been added in this release. The MPLS Forwarder core component receives packets and messages from the MPLS Forwarder microblocks (ILM Forwarder and FTN Forwarder). For details, refer to the *Intel® Internet Exchange Architecture Software Building Blocks Reference Manual*.

Control Plane Platform Development Kit (CP-PDK)

Refer to the CP PDK release notes for additional details. To access the CP-PDK Release Notes, click Start > Programs > IXA SDK 3.5 > Documentation > Software Framework > CP-PDK > User

Documentation

- There is a new navigation tool for the IXA SDK Software Framework documentation set. To access it, click Start > Programs > IXA SDK 3.5 > Documentation > Software Framework > IXA SDK > Documentation
- There is an updated readme file for the following application:
 - Quad Gigabit Ethernet IPv6 Forwarding Application

Changes

- For the IXDP2401 Advanced Development Platform: the IXMB2401 Spin .1A baseboard is not supported.
- TM4.1 used in earlier release has been retired. A new TM4.1 is available and is used in ATM Diffserv application. The OC48 ATM IPv4 forwarding application is still available but with a round robin scheduler.

Limitations

- The CP-PDK supports the Intel® IXDP2400 Advanced Development Platform hardware only.
- IXP2400 based applications running on hardware have been tested with IXP2400 B0 silicon. Applications running on the simulator are tested with the IXP2400 B0 transactor.
- CSIX counters: The CSIX Tx microblock doesn't maintain any counters as the counters are usually available in switch fabric. However, the IXDP2400 Advanced Development platform uses only a loopback CSIX fabric which does not support any counters.
- The IP DiffServ application was enhanced with a new meter (SRTCM/TRTCM) microblock and the Pool of Threads (POTS) support was removed. POTS is still supported in the OC48 IPv4 Forwarding application.



Major Bug Fixes

Installation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
N/A	<p>The 3.1 Software Framework SDK did not support multiple versions of the Tools SDK on the same system. This has been resolved.</p> <p>In this release, the 3.51 Tools and 3.51 Software Framework releases support installations of multiple versions on the same system. In addition, the 3.1 and 3.51 Software Framework SDK can coexist on the same system.</p> <p>The recommended installation order is as follows:</p> <ul style="list-style-type: none">• Install 3.51 Tools SDK• Install 3.5 Firmware• Install 3.51 Software Framework SDK	Fixed

Documentation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
3837	The IXA SDK 3.0 Product Brief incorrectly states that Windows NT is supported by the SDK as the development platform.	Fixed
4256	Section 2.10.20 of the <i>IXP2400/IXP2800 Network Processor Development Tools Users Guide</i> was incorrect.	Fixed
4777	The Developer's Workbench Online help incorrectly states that Hardware Debug is not supported.	Fixed
5877	Section 5.4.1.2.3, item 8 of the Software Framework Installation Guide incorrectly specified the name of 'oc48_ethernet_ipv6_ingress.dwp'. It should be '4gb_ethernet_ipv6_ingress.dwp' instead.	Fixed
6759	Step by Step instructions to run IPv6 application is missing in the CD.	Fixed

Intel XScale® Core Components

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
4786	When downloading the oc48_sphy_pos_egress project onto the vxworks simulator, a number of undefined symbols are reported. These belong to the POS media driver and can safely be ignored.	Fixed
4800	Error messages are printed during system startup such as: 0x10d1aac (t1): Failed to patch for ME: 0x03 symbol: DL_REL_BASE These can safely be ignored, the error message is printed because the symbol is currently unused.	Fixed
6052	<p>Symptom</p> <p>When receiving an ARP packet destined for a host other than ourselves, an error is printed on the console.</p> <p>Root Cause</p> <p>Incorrect usage of debug levels in ARP component</p> <p>Workaround</p> <p>This error message can be safely ignored. Only occurs in debug mode.</p>	Will be fixed in future release

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
6053	<p>Symptom</p> <p>While handling ARP reply and a lookup failed, the ARP component currently returns IX_SUCCESS.</p> <p>Root Cause</p> <p>Bug in ARP component, it should return some error code rather than IX_SUCCESS.</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release
6764	Two Linux user mode utility programs (rconfig and l2config) fail when Hex numbers that starts with 'a' – 'f' are used.	Fixed

Known Problems and Workarounds

'Disposition' field can be one or more of the following:

<i>Under Investigation</i>	The bug is being investigated.
<i>Root Cause Identified</i>	The root cause for the bug is identified.
<i>Will be Fixed in Release-N</i>	Based on effort estimate, the release the fix will be in.

Installation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
N/A	<p>Symptom</p> <p>Linux installation directory problems.</p> <p>Root Cause</p> <p>Tools and Software Framework have tar and rpm installations.</p> <p>Workaround</p> <p>You must unzip the Tools and Firmware SDK for Linux in the directory /opt/ixa_sdk_3.5 because the 3.51 Software Framework SDK Linux rpm installs in the directory /opt/ixa_sdk_3.5 by default.</p>	Root Cause Identified.

Examples and Microblocks

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
FYI	<p>Symptom</p> <p>After Installing and uninstalling VxWorks Tornado couple of times when building 10x1GEther_rm_init.out (vxworks project under 10x1GigE_xscale_init) you get compilation error due to corruption of project settings related to GNU tools. Some installations do not exhibit this behaviour.</p> <p>Root Cause</p> <p>This is a Tornado issue.</p> <p>Workaround</p> <ol style="list-style-type: none"> 1) Go to Builds tab and expand "10x1GEther_rm_init" Builds 2) Right click on XSCALEgnube_2800 and select Properties 3) Go to C/C++ compiler tab 4) Add "-DTOOL_FAMILY=gnu" 	Workaround available.

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
N/A	<p>Symptom</p> <p>While running performance tests on IXDP28x1 and IXDP2401 some frames are lost.</p> <p>Root Cause</p> <p>Using the debug port causes access to memory shared with Microengines. This causes delays in Microcode.</p> <p>Workaround</p> <p>When executing performance tests do not use the debug port. To find out how to run IXDP28x1 and IXDP2401 without the debug port please refer to Appendix C of these Release Notes.</p>	As designed, will not be fixed
2276	<p>Symptom</p> <p>OC192 POS Ipv4/v6 application: For v4/v6 min packet on 1 IP stream the application runs at 60% line rate with 200 MHz QDR. For multiple IP streams it runs at line rate. Runs at line rate with 233 MHz QDR.</p> <p>Root Cause</p> <p>This is a known hardware issue with SRAM Q-Array unit in A1 & A2 silicon of IXP2800. This has been fixed with B0 IXP2800.</p> <p>Workaround</p> <p>Use two physical link lists per packet queue and strictly ping pong between them.</p>	Root Cause Identified.
7122	<p>Symptom</p> <p>10x1 GigE Ipv4/v6 forwarding application: For Jumbo packets occasionally CRC errors occur. The same symptom can be observed for min packets after running for 4-5 hours.</p> <p>Root Cause</p> <p>IXF1110 (10x1 GigE MAC) has 4.5 K Tx FIFO per port. However, between IXP2800 and IXF1110 there is ~10K buffer (8K TBUF + 2K FPGA buffer). By the time IXF1110 sends flow control ("Satisfied") on reaching HWM IXP2800 (i.e. packet_tx microblock) could have put more than 4.5K data in TBUF. (Any data once written to TBUF cannot be flow controlled). This causes an occasional overflow of TxFIFO which causes packet truncation which in turn causes CRC errors.</p> <p>Workaround</p> <p>This problem can be minimized by adjusting the credits in Packet Tx and HWM & LWM of TxFIFO in IXF1110.</p>	Root Cause Identified.
7135	<p>Symptom</p> <p>New applications created for the IXDP2401 or IXDP28x1 platforms fail to compile or run correctly.</p> <p>Root Cause</p> <p>When a project file (*.wpj) is being created based on the project_base\AT_base.wpj template, the project file inherits an invalid definition. The invalid definition is IX_PLATFORM_2400, found in the GLOB_DEFINES macro in each build target. For example, XSCALEgnube_Debug->Properties->Macros->GLOB_DEFINES</p> <p>Workaround</p> <p>For IXDP2401 applications, this definition must be changed to IX_PLATFORM_2401.</p> <p>For IXDP28x1 applications, this definition must be changed to IX_PLATFORM_2801.</p>	Workaround available
7636	<p>Symptom</p> <p>10x1 GigE IPv4/v6 forwarding application: Jumbo packets: When systematically transmitting all different packet sizes (from 64 to 9K) at 3100+ byte packet size the line rate drops to 94.5% percent. On reset if 3100 byte or any larger packets are transmitted (i.e. without transmitting 64, 65....3099 byte packets) it seems to run at line rate.</p>	Under Investigation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
7644	<p>Symptom</p> <p>Performance issue: MPLS pipeline for IPv4 cannot reach line rate for push operations. This issue applies to a 2400-based application running on the IXDP2400 platform.</p> <p>Root Cause</p> <p>The decrease in performance of the MPLS application is caused by the alignment of the packet buffer in DRAM. Now buffers are aligned to 2048 bytes. For optimization, DRAM access should be spread uniformly across 4 DRAM banks. To make that happen, the packet RX microblock saves packets in DRAM with different offsets: 128, 256, 384, 512 bytes. However, when MPLS performs a push operation, it decreases the offset. This in turn spoils the above optimization. For the MPLS application, the solution would be to use offsets 144, 272, 400, 528 bytes. (The MPLS microcode adds maximum 4 labels * 4 bytes = 16 bytes)</p> <p>Workaround</p> <p>To improve MPLS application performance you must modify /src/framework/rm/source/buffer.c file in line 343</p> <p>From:</p> <pre>err = ix_rm_mem_alloc_aligned(pFreeList->m_DataMemoryType, pFreeList->m_DataMemoryChannel, size, IX_MEMORY_ALIGNMENT_TYPE_PHYSICAL_OFFSET, 11, ((void**)&pFreeList->m_pDataBaseAddress));</pre> <p>To:</p> <pre>#if (_IX_HARDWARE_TYPE_ == _IX_HW_2800_) err = ix_rm_mem_alloc_aligned(pFreeList->m_DataMemoryType, pFreeList->m_DataMemoryChannel, size, IX_MEMORY_ALIGNMENT_TYPE_PHYSICAL_OFFSET, 11, ((void**)&pFreeList->m_pDataBaseAddress)); #else err = ix_rm_mem_alloc_aligned(pFreeList->m_DataMemoryType, pFreeList->m_DataMemoryChannel, size, IX_MEMORY_ALIGNMENT_TYPE_PHYSICAL_OFFSET, 5, ((void**)&pFreeList->m_pDataBaseAddress)); #endif</pre> <p>Note that this workaround could cause performance degradation for IXP2800 network processor.</p>	Will be fixed in future release.
18324	<p>Symptom</p> <p>Due to the flaw in signaling scheme it is theoretically possible that under heavy memory load TRTC Meter or WRED microblocks may exhibit improper behavior.</p> <p>Root Cause</p> <p>Race condition between different microengines running TRTCM or WRED which access the shared data structure.</p> <p>The condition arises by improper use of signalling between microengines. The blocks in the functional pipeline implement critical sections and update shared data in SRAM. When one microengine does a write and another microengine a read a little later, they may reach the SRAM controller out of order. To guarantee the order, a CAP signal is used. The first microengine does a write, followed by a CAP signal. The other microengine does a wait for CAP signal followed by a read. The CAP uses the SHAC unit. So the fact that the CAP signal has been delivered also guarantees that before the read is launched the write has reached the SRAM controller. In current implementation CAP signal is sent before SRAM write which under heavy memory load may cause read to precede the write.</p> <p>Workaround</p> <p>Not required. Problem has not been observed yet.</p>	Will be fixed in future release.



<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
N/A	<p>Symptom</p> <p>4 OC12 POS 6 GB Ethernet 2801 Application: Workbench simulation doesn't forward packets or hangs after a number of packets sent.</p> <p>Root Cause</p> <p>Improper compilation of the microcode. Possible Flow Control disabled on the simulated MAC devices.</p> <p>Workaround</p> <p>Make sure that the following compilation flags are in Build/General window:</p> <p>IX_PLATFORM_2801, SIMULATION, FAST_SIMULATION, COMPRESSED_NEXTHOP_INFO</p> <p>Make sure that the following compilation flags aren't in this window:</p> <p>IXP_HARDWARE, USE_IMPORT_VAR</p> <p>Make sure that Flow Control feature is enabled for the both simulated MAC devices (checkbox "Simulation/System Configuration/MSF Devices/Edit Device/Enable TX flow control" must be set).</p>	As designed, will not be fixed.

Intel XScale® Core Components

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
4708	<p>Symptom</p> <p>When trying to use ix_sa_shutdown on Egress, it generates the following error:</p> <p>0xffb22c:(t8):memPartFree invalid block 0xa4888 in partition 0xe799c</p> <p>Root Cause</p> <p>This is caused by deallocation of the arg_pCtlBlk->pChipData in the POS TX core component.</p> <p>Workaround</p> <p>Currently the workaround for this problem is to not perform this deallocation at the time of shutdown. This results in a minor memory leak.</p>	Root cause identified
4744	<p>Symptom</p> <p>Process exception/error while running with mutiple threads accessing the error extensions facility</p> <p>Root Cause</p> <p>The error extensions facility is not thread-safe, and can cause corruption when used from multiple threads.</p> <p>Workaround</p> <p>Don't use the error extensions facility from multiple consumers when running in a multi-threaded environment.</p>	Will be fixed in future release
4745	<p>Symptom</p> <p>After adding and deleting 30000 routes, the system crashes if ix_sa_shutdown is called. This happens with simulation mode oc-48 vxWorks build.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Under investigation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
4784	<p>Symptom</p> <p>System does not function correctly with a buffer size parameter in the XML configuration file set to a non-default value (!= 2048)</p> <p>Root Cause</p> <p>Some core components use hard-coded buffer size values, rather than the correct buffer size property from the registry</p> <p>Workaround</p> <p>None</p>	Root cause identified
4831	<p>Symptom</p> <p>After a physical link pull and link recovery, the IXDP2400 system is unable to recover and pass packets.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Under investigation
4835	<p>Symptom</p> <p>When sending sustained very high rates of local delivery packets to the system which are destined for the high priority queue, the system does not transmit any packets. Once the incoming traffic does stop, an entire queue full of outgoing packets (256) is transmitted and received by the traffic generator.</p> <p>Root Cause</p> <p>Even though the outgoing queue is full, the system will continue to service the incoming high priority traffic, so that the outgoing packets are never transmitted until the incoming rate slows down or stops.</p> <p>Workaround</p> <p>As long as the incoming traffic rate is bursty, or it is not at a rate high enough to exceed the cost on the core to drop a packet, packets will be transmitted.</p>	Root cause identified
4911	<p>Symptom</p> <p>When retrieving statistics for the CSIX RX core component, it always reports 0.</p> <p>Root Cause</p> <p>This is because the microblock is not updating these counters.</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release
5087	<p>Symptom</p> <p>Passing invalid parameters to the POS RX/TX init and fini APIs can cause the Tornado shell to hang.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
5333	<p>Symptom</p> <p>The L2 Table manager can not be accessed synchronously by multiple clients.</p> <p>Root Cause</p> <p>L2 Table Manager Readers/Writer Lock is not currently implemented. The L2TM HLD calls for a Readers/Writer lock to protect the tables when multiple clients use it in a preemptive environment.</p> <p>Workaround</p> <p>Implement the readers/writer lock mechanism 2) Add macros to the L2TM that, depending on a build flag, either a) call the lock/unlock functions or b) do nothing. (Allows the whole thing to be excluded if it isn't needed.) 3) Use the macros when entering and exiting the various L2TM entry points.</p>	Will be fixed in future release
5590	<p>Symptom</p> <p>In VxWorks the port MAC address displayed using the 'ifShow' command is invalid.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>The MAC addresses in use by the system can be found in the system application's XML configuration file in the appropriate directory under <IXA_SDK_INSTALL_DIR>/src/applications/<application></p>	Root cause identified
5681	<p>Symptom</p> <p>POS driver state changes are not propagated from the POS TX core component to the POS RX core component.</p> <p>Root Cause</p> <p>A message for passing this property is not implemented</p> <p>Workaround</p> <p>Always retrieve POS interface state from the POS TX core component.</p>	Root cause identified
5878	<p>Symptom</p> <p>When adding a permanent ARP entry into the ARP cache by using ix_cc_arp_add API, correct destination MAC address was added into the new ARP entry but the corresponding L2 entry has incorrect dest MAC address.</p> <p>Root Cause</p> <p>This is due to a bug in the ARP code, ix_cc_arp.c, where it does not update a local ether header structure correctly before calling ix_cc_l2rm_update_entry.</p> <p>Workaround</p> <p>Use ix_cc_l2tm_add_entry API to add a permanent ARP entry.</p>	Will be fixed in future release
5882	<p>Symptom</p> <p>When starting the POS pipeline, a number of warnings are printed to the screen indicating some symbols failed to patch.</p> <p>Root Cause</p> <p>These symbols are unused</p> <p>Workaround</p> <p>These can be safely ignored.</p>	Will be fixed in future release

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
5896	<p>Symptom</p> <p>IPv6 application dumps numerous messages to the console in both release and debug builds.</p> <p>Root Cause</p> <p>Incorrect usage of error levels in IPV6 source code</p> <p>Workaround</p> <p>These can be safely ignored.</p>	Deferred
5930	<p>Symptom</p> <p>OC48 POS core component RTM allows 32 packets to be transmitted when portID = 2. This should not be allowed.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>Unknown</p>	Will be fixed in next release
5950	<p>Symptom</p> <p>Packets destined for the local IPv4 subnet which have a TTL of 0 or 1 when sent through the core components get dropped, when they should not.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>Use a higher TTL.</p>	Will be fixed in future release
6082	<p>Symptom</p> <p>Adding duplicated routes or next hops causes the message support library to allocate s/w buffers which would never be freed if the reply message is to be sent over PCI.</p> <p>Root Cause</p> <p>Message support library incorrectly handles messages exceeding a certain buffer size</p> <p>Workaround</p> <p>Do not add duplicated routes or next hops.</p>	Will be fixed in future release
6548	<p>Symptom</p> <p>Using dumpRtm to display next hop ID and route entries, not all next hop ID and route entries are displayed.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
6577	<p>Symptom</p> <p>IPv6 forwarder fails RFC compliance checks. The following failures were identified when using the TAHI IPv6 and ICMPv6 test suites on the IPv6 forwarder.</p> <ol style="list-style-type: none"> 1. When using Hop-by-Hop options, an ICMP message is returned correctly, however the problem pointer is incorrect. 2. When using Hop-by-Hop options with Pad1 and PadN, an unrecognized next header type is encountered. 3. When sending a next header of 128 (invalid), should receive an ICMP or NS, but packet is forwarded. 4. No packets received when sending echo request with an ID of 65535. 5. When setting the HeaderExtLength of Hop-by-Hop to 100, An ICMP is sent (unrecognized next header type). 6. When setting NextHeader to 0, an ICMP message is sent (unrecognized next header type). 7. Unable to ping v6 hosts. 8. Packets are dropped when packets are sent to a route destined for port 8 (doesn't exist). An ICMP error should be sent. 9. Packets are forwarded instead of an ICMP error message being sent for ICMPv6 parameter errors. 10. Unable to test ICMPv6 messages destined to link local address due to lack of support for IPv6 in the XML configuration file. <p>Root Cause</p> <p>Various</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release
6579	<p>Symptom</p> <p>When sending IPv6 fragments to v4 across a v6v4 tunnel and setting the identification within the fragment to 10,000, the ID within the v4 packet should be 10,000 and is not.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release
6580	<p>Symptom</p> <p>IPv6 pipeline sequence tests fail: Out of 2,688,212,132 packets sent through NAT-PT in a single burst, 227 packets were out of sequence. A minimum of 1 packet out of all follow-on bursts is out of sequence. If 10 packets are sent in a burst, 1 packet is out of sequence.</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release
6841	<p>Symptom</p> <p>Processes communicating across the PCI bus using the Message Support library are unable to send error chains as return messages</p> <p>Root Cause</p> <p>The message support library does not allocate buffer chains for sending messages across PCI</p> <p>Workaround</p> <p>Do not send error chains across PCI using the message support library</p>	Will be fixed in future release

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
7067	<p>Symptom</p> <p>Incorrect description of running the IPV4 forwarding application in section 4.3.2 of the Getting Started Guide.</p> <p>Root Cause</p> <p>Documentation error</p> <p>Workaround</p> <p>In section 4.3.2 of the "Getting Started Guide" - "Running the IPV4 Forwarding Application on Hardware using Core Components", after step 4, the following steps need to be performed before going to step 5:</p> <p>On a Windows machine, you will need to build uof files for the Egress and Ingress side. Open the Developer's Workbench and open the project '4gb_ethernet_ipv4_egress.dwp' under \$(IXA_SDK_DEV)/src/applications/ipv4_forwarder/4gb_ethernet/egress/wbench_project and build the uof file by clicking 'Rebuild'.</p> <p>Open the ingress project (4gb_ethernet_ipv4_ingress.dwp) under \$(IXA_SDK_DEV)/src/applications/ipv4_forwarder/4gb_ethernet/ingress/wbench_project and build the uof file. You will need to copy these two uof files onto the Linux distribution directory, which is /opt/xscale_be_test/linux_kernel/xscale_be/ixp2400 in case of release build and is /opt/xscale_be_test/linux_kernel/xscale_be/ixp2400/debug in case of the debug build.</p>	Will be fixed in future release.
7646	<p>Symptom</p> <p>When an execution engine has active 2 events with expiry times X and Y with X<Y, at the time X expires and is removed (as in the case of a one shot event), the next expiration time will be set to Y rather than Y-X. This problem will manifest in various ways and will lead to unpredictable behavior.</p> <p>Root Cause</p> <p>Code error in calculating the next even expiry time.</p> <p>Workaround</p> <p>Have just one event per execution engine at a time.</p>	Will be fixed in next release.
8577	<p>Symptom</p> <p>In DiffServ applications, IP packets are not marked if they are sent through Core Component.</p> <p>Root Cause</p> <p>In the 6-tuple Classifier Core Component, if statistics code is not included, a part of the code responsible for setting the output block ID from the matching rule is excluded from the build, resulting in sending all packets to default output.</p> <p>Workaround</p> <p>Compile the diffserv application with a CLASSIFIER_6T_PACKET_COUNTER_FEATURE token defined.</p>	Will be fixed in future release.
18404	<p>Symptom</p> <p>When ping requests are sent to the local stack with a request size exceeding 2000 bytes in length, no response is received</p> <p>Root Cause</p> <p>Unknown</p> <p>Workaround</p> <p>Send ping requests less than 2000 bytes in length</p>	Will be fixed in future release.

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
18428	<p>Symptom</p> <p>The platform stops responding to ping requests on certain ports after several hundred routes are added to the routing table</p> <p>Root Cause</p> <p>The software LPM table has an off by one error in the use of it's pool.</p> <p>Workaround</p> <p>None</p>	Will be fixed in future release.
18507	<p>Symptom</p> <p>The MPLS CC stops adding new FEC entries after an attempt of creating two FECs with the same NHLFE handle. The additional effect is that the MPLS CC doesn't clean LPM and Nexthop entries created for ipv4 forwarder.</p> <p>Root Cause</p> <p>After an attempt of creating FEC with already used NHLF entry the API create LSP function exits without freeing the preallocated element in the internal LSP CC table. After that every next try to create LSP entry results in error.</p> <p>Workaround</p> <p>Do not let the incorrect condition occur.</p>	Will be fixed in future release.
24387	<p>Symptom</p> <p>When building Tornado projects, it always generates a warning saying dependencies need to be rebuilt</p> <p>Root Cause</p> <p>A bug in the Tornado project facility dependency generation does not allow for resolution of environment variables such as \$IXA_SDK_DEV</p> <p>Workaround</p> <p>No workaround, user must generate dependencies for each build</p>	Problem report open with Windriver Systems
24475	<p>Symptom</p> <p>Same IPv6 address can be assigned to the multiple ports of Angel Island hardware using IPv6 application. The different ports should not accept the same IPv6 address.</p> <p>Root Cause</p> <p>The Stack Driver / VIDD code doesn't check for duplication of IPv6 address on multiple ports.</p> <p>Workaround</p> <p>None.</p>	Will be fixed in future release.



Documentation

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
18303	<p>Symptom</p> <p>In the Building Blocks Developer's Manual, the IPv6 Forwarder Microblock chapter, 25.6.1 L3 Next Hop Information, Tables 25-5 and 25-8 have incorrect information.</p> <p>Workaround</p> <p>Corrected tables are included in the Documentation Errata section of these Release Notes.</p>	Will be fixed in future release.



Operating System

<i>Id</i>	<i>Release Note</i>	<i>Disposition</i>
N/A	<p>Symptom</p> <p>On Linux, when loading loadable modules into the kernel, a warning message is printed on the console for each module as follows:</p> <p>Warning: loading stkdrrv_cc.o will taint the kernel: non-GPL license - Proprietary See http://www.tux.org/lkml/#s1-18 for information about tainted modules Module stkdrrv_cc loaded, with warnings</p> <p>Root Cause</p> <p>Linux kernel design</p> <p>Workaround</p> <p>This warning can be safely ignored, it is displayed whenever a non-GPL licensed module is loaded into the kernel.</p> <p>This warning can be suppressed and sent to the system log instead of the console at the time a kernel module is loaded (by modifying the 'startingress.sh' and 'startegress.sh' shell scripts, or on the command line) by adding '-s' to the 'insmod' command. Note however that this suppresses some useful error messages such as incompatible kernel/KLM versions, therefore, this suppression should only be done for production releases and not during development.</p>	As designed, will not be fixed.
N/A	<p>Symptom</p> <p>On Linux the insmod command fails while loading halMeDrv.o, libossl.o or halMev2_lib.o modules after IXA SDK 3.51 installation or Linux Kernel modification.</p> <p>Root Cause</p> <p>These Linux Kernel modules are platform specific and should be recompiled after IXA SDK 3.51 tools installation and Linux Kernel modifications.</p> <p>Workaround</p> <p>Perform the following operations in order to recompile ME Tools:</p> <ol style="list-style-type: none">1. Make sure that you have Monta Vista Linux toolchain 3.0 installed2. Make sure that you have IXDP2401 Linux kernel source code and you have already built zlimage.2. Change directory to /opt/ixa_sdk_3.5/me_tools3. Rebuild kernel modules: <pre>make -C XSC_CoreLibs/makDefs -f coreLibs.mak BE=1 SYS=LINUX PLATFORM=IX_PLATFORM_2401 BSP_DIR=<PATH_TO_KERNEL_SOURCE_DIRECTORY> clean</pre> <pre>make -C XSC_CoreLibs/makDefs -f coreLibs.mak BE=1 SYS=LINUX PLATFORM=IX_PLATFORM_2401 BSP_DIR=<PATH_TO_KERNEL_SOURCE_DIRECTORY></pre> <pre>make -C XSC_CoreLibs/makDefs -f coreLibs.mak BE=1 SYS=LINUX PLATFORM=IX_PLATFORM_2401 BSP_DIR=<PATH_TO_KERNEL_SOURCE_DIRECTORY> CCMODE=DEBUG clean</pre> <pre>make -C XSC_CoreLibs/makDefs -f coreLibs.mak BE=1 SYS=LINUX PLATFORM=IX_PLATFORM_2401 BSP_DIR=<PATH_TO_KERNEL_SOURCE_DIRECTORY> CCMODE=DEBUG</pre> <p>where:</p> <p><PATH_TO_KERNEL_SOURCE_DIRECTORY> is the path to IXDP2401 kernel sources (IXDP2401 Linux kernel should be compiled earlier), for example:</p> <p>BSP_DIR=/opt/linux_kernel/ixp2000_kernel/linux</p> <p>NOTE: If you are working on IXDP2801, you should use PLATFORM=IX_PLATFORM_2801 and BSP_DIR should point to IXDP2801 Linux kernel sources.</p>	As designed, will not be fixed.

Compatibility Notes

dbgMe Library Functions

The following dbgMe library functions have been replaced by dbgMe_PutRelDataReg or dbgMe_GetRelDataReg:

- dbgMe_PutRelGPR, dbgMe_GetRelGPR
- dbgMe_PutRelWrXfer, dbgMe_GetRelWrXfer
- dbgMe_PutRelRdXfer, dbgMe_GetRelRdXfer
- dbgMe_PutRelNN, dbgMe_GetRelNN

The halMev2 library function halMe_IsMeActive has been replaced by halMe_IsMeEnabled.

The halMev2 library functions halMe_EnableCtx and halMe_DisableCtx are not supported. The halMe_Start and halMe_Stop functions should be used instead.

The “timeout” parameter in halMe_GetMeCsr and halMe_PutMeCsr has been eliminated.

HALME_INACTIVE and HALME_ACTIVE have been renamed to HALME_DISABLED and HALME_ENABLED, respectively.

DBGME_INACTIVE and DBGME_ACTIVE have been renamed to DBGME_DISABLED and DBGME_ENABLED, respectively.

Adding an IPv6 Interface

In previous releases of the IXA SDK Software Framework, when adding an IPv6 interface at the CP-PDK(Control Plane Platform Development Kit) level, only the **ix_cc_async_set_property()** asynchronous call was invoked.

In this release, the user must first invoke the **ix_cc_async_set_property()** asynchronous call and then explicitly add or delete the IPv6 address using the **ifconfig** command. The **ifconfig** command has the following syntax:

- **Add** syntax: **ifconfig <interface> inet6 add <ipv6address>/<prefixlength>**
- **Delete** syntax: **ifconfig <interface> inet6 del <ipv6address>/<prefixlength>**



Supported Applications

Processor	Platform	Operating System	Application Name	Release 3.5 Revisions
2400	IXDP 2400 and simulation	VxWorks* and Linux*	OC-48 POS-IPV4 Forwarding Application	No change
2400	IXDP 2400 and simulation	VxWorks* and Linux*	4Gb Ethernet IPv4 Forwarding Application	No change
2400	IXDP 2400 and simulation	VxWorks*	OC-48 ATM AAL5 IPv4 Forwarding Application	Add core components
2400	IXDP 2400 and simulation	VxWorks* and Linux*	4Gb Ethernet IPv4/IPv6 Forwarding application	Add local stack support on Linux and Linux core components
2400	IXDP 2400 and simulation	VxWorks*	OC-48 DiffServ for POS IPv4 Forwarder Application	No change
2400	IXDP 2400 and simulation	VxWorks*	DiffServ for ATM	No change
2400	IXDP 2400 and simulation	VxWorks*	OC-48 POS MPLS IPv4 Forwarder Application	Add MPLS core components and exception handling
2400	IXDP 2400 and simulation	VxWorks*	10 Gb Ethernet IPv4 Forwarding Application	No change
2400	IXDP 2400 and simulation	VxWorks*	4xOC-12 POS ATM/DiffServ IPv4 Forwarder	No change
2400	IXDP 2400 and simulation	VxWorks*	4xOC-12 ATM AAL5 Forwarder	No change
2800	IXDP 2800 and simulation	VxWorks* and Linux*	OC-192 POS IPv6/IPv4 Forwarding and Tunneling Application	Add hardware support and support for Linux OS
2800	Simulation only	-	Core Router (OC-192 POS MPLS IPv4 Forwarder)	No change
2800	IXDP 2800 and simulation	VxWorks* and Linux*	10x1GbE IPv4/IPv6 Forwarding and Tunneling	New, includes Linux core components
2800	IXDP 2800 and simulation	VxWorks*	10GbE IPv4/IPv6 Tunneling	New
2800	IXDP 2800 and simulation	VxWorks*	OC-192 POS IPv4 MPLS	New
2400	IXDP 2401 and simulation	VxWorks* and Linux*	Dual OC-12 POS/ Dual Gigabit Ethernet Forwarding Application	Add support for Linux OS
2400	IXDP 2401 and simulation	VxWorks* and Linux*	Quad Gigabit Ethernet IPv4 Forwarding Application	Add support for Linux OS
2400	IXDP 2401 and simulation	Linux*	ATM (AAL5) IPv4 Forwarding Application	New
2800	IXDP 28x1 and simulation	Linux*	POS/Ethernet IPv4 Forwarder Application	New

Documentation Errata

Building Blocks Developer's Manual

There is incorrect information in the IPv6 Forwarder Microblock chapter, in Section 25.6.1 Next Hop Information, in Tables 25-5 and 25-8. The corrected tables are shown below and will be added to the manual in a future release.

Table 25-5. Fields of a *Real* Next-Hop Entry

LW	Bits	Size	Field	Description
0	31:24	8	Reserved	Reserved
0	23:16	8	Valid	If 1, indicates that this entry is in use.
0	15:0	16	Generic Flags	Flags to indicate action as follows: IPV6_NH_FLAGS_LOCAL: Local Delivery IPV6_NH_FLAGS_DOWN: Interface is down. IPV6_NH_FLAGS_DROP: Simply drop the packet. IPV6_NH_FLAGS_MULTIPLE: This entry is an intermediate entry.
1	31:24	8	Blade ID	CSIX information to send the packet to the right egress microengine for encaps processing
1	23:20	4	NH-ID Type	Next Hop ID Type. The following values are defined: NHID_TYPE_FWRD: Forwarder Type NHID_TYPE_TUNNEL: Tunneling Type NHID_TYPE_COMPRESS - Compression Type
1	19:16	4	Reserved	Reserved
1	15:0	16	Next-Hop ID	Next-Hop ID, can be the L2 table next-hop index, tunneling table index or some other information.
2	31:16	16	MTU	The MTU supported by this outgoing interface.
2	15:0	16	Out Port	Output port to use to transmit the packet.
3	31:0	32	Reserved	Reserved

Table 25-8. Fields of an Intermediate Next-Hop Entry

LW	Bits	Size	Field	Description
0	31:28	4	Status	A four bit field indicating the link status (UP/DOWN) of the 4 equal cost next hop interfaces. 1 indicates that the interface is UP, 0 indicates that the interface is DOWN.
0	27:24	4	Reserved	Reserved
0	23:16	8	Valid	If 1, indicates that this entry is in use.
0	15:0	16	Generic Flags	This type of an entry has only the following flag set: IPV6_NH_FLAGS_MULTIPLE: Indicates that this entry is an "intermediate" entry with up to 4-equal cost next hops embedded within it.
1	31:16	16	Next-Hop Index 1	L3 Next Hop Index of the first equal cost entry
1	15:0	16	Next-Hop Index 2	L3 Next Hop Index of the second equal cost entry
2	31:16	16	Next-Hop Index 3	L3 Next Hop Index of the third equal cost entry
2	15:0	16	Next-Hop Index 4	L3 Next Hop Index of the fourth equal cost entry
3	31:0	32	Reserved	Reserved



IXA SDK Software Framework Getting Started Guide

The following paragraphs contain corrected information.

Section 4.3.4

Step 3 contains some sub-steps that are no longer necessary. The updated sequence for step 3 is as follows:

- a. On your Linux host, cd to the IXDP2800 LSP directory:

```
hostpc# cd /opt/hardhat/devkit/lsp/intel-ixdp2800-arm_xscale_be/  
linux-2.4.18_mvl30
```
- b. Export PATH for armtoolchain as follows:

```
hostpc# export PATH=$PATH:/opt/hardhat/devkit/arm/xscale_be/bin:
```
- c. Enable the IPv6 in the LSP configuration file and re-build the kernel:

```
hostpc# make distclean  
hostpc# make ixdp2800_config
```
- d. Run xconfig GUI software to enable IPv6 in the configuration file:

```
hostpc# make xconfig
```
- e. A **Linux Kernel Configuration** window will appear. Select the **Networking Options** button.
- f. Scroll down and on the item called **The IPv6 protocol (EXPERIMENTAL)**.
- g. Check the **y** box.
- h. Click the **Main Menu** button.
- i. Click **Save and Exit** button.
- j. Continue with the following commands:

```
hostpc# make oldconfig  
hostpc# make dep  
hostpc# make zImage
```
- k. When the build process finishes, a new compressed kernel image with IPv6 support is generated in **/opt/hardhat/devkit/lsp/intel-ixdp2800-arm_xscale_be/linux-2.4.18_mvl30/arch/arm/boot/zImage**. Copy the **zImage** to the **tftp** boot directory:

```
hostpc# cp /opt/hardhat/devkit/lsp/intel-ixdp2800-arm_xscale_be/  
linux-2.4.18_mvl30/arch/arm/boot/zImage /tftpboot/
```

Section 4.3.4

Step 10 describes how to set up V6/V4 tunneling using a utility which is not supported in the IXA SDK 3.51 release. This step will be removed in a future revision of the document.

Correction for Dual OC-12 POS/Dual Gigabit Ethernet Forwarding Application Readme File

In section 4.1, Running on Linux, Step 9 should read as follows:

9. run `./oc12_pos_gbeth_2401_run.sh [spin1a/spin2] [db0/db1] [bb/db]`

Where the parameters have the following meaning:

- **spin1a** – this parameter is not supported and should not be used.
- **spin2** – this parameter should be used when running on IXMB2401 spin 2. Since this is the only supported baseboard type, this parameter must always be set.
- **db0** – this parameter means that the POS/ATM Mezzanine Card is inserted in DB1. Recently the identification of the daughter board connectors has been changed to DB1 and DB2, however, the starting script still uses the old identification (DB0 and DB1).



- **db1** – this parameter means that the POS/ATM Mezzanine Card is inserted in DB2. Recently the identification of the daughter board connectors has been changed to DB1 and DB2, however, the starting script still uses the old identification (DB0 and DB1).
- **bb** – this parameter means that the Gigabit Ethernet ports are either on the backplane or on a baseboard MIC.
- **db** – this parameter means that the Gigabit Ethernet ports are on a Gigabit Ethernet Mezzanine Card inserted in DB1 or DB2.

Correction for Quad Gigabit Ethernet Forwarding Application Readme File

In section 4.1, Running on Linux, Step 9 should read as follows:

9. run `./quad_gbeth_2401_run.sh [bb/db0/db1]`

Where the parameters have the following meaning:

- **bb** – this parameter means that ports 2 and 3 are on a baseboard MIC.
- **db0** – this parameter means that ports 2 and 3 are on a Gigabit Mezzanine Card inserted in DB1. Recently the identification of the daughter board connectors has been changed to DB1 and DB2, however, the starting script still uses the old identification (DB0 and DB1)..
- **db1** – this parameter means that ports 2 and 3 are on a Gigabit Mezzanine Card inserted in DB2. Recently the identification of the daughter board connectors has been changed to DB1 and DB2, however, the starting script still uses the old identification (DB0 and DB1)..

Software Framework/Tools SDK Matrix

The following table indicates the relationship between the Tools SDK version and the Applications SDK releases. Please make sure the Tools and Firmware (BSP and Boot Monitor) versions are in sync.

Software Framework SDK Release #	Tools Version #	Comments
SDK PR5	N/A	Tools and applications SDK were the same.
SDK PR6 – Beta 2	SDK PR6 – Beta 2	Please see the tools SDK release notes on firmware dates and versions.
SDK PR6- FCS	SDK PR6- FCS	Please see the tools SDK release notes on firmware dates and versions
SDK 3.1.0	SDK Tools 3.1 Pre-release 3	Please see the tools SDK release notes on firmware dates and versions.
SDK 3.51	SDK Tools 3.51	Please see the tools SDK release notes on firmware dates and versions.



Appendix A: Verified Hardware Configurations of the IXDP2401 Platform

Due to a large combination of hardware configurations of the IXDP2401 platform, not all configurations could be thoroughly tested and verified. The following tables list hardware configurations tested and verified for the IXA SDK 3.51 release.

Dual OC-12 POS/Dual Gigabit Ethernet Forwarding Application under Linux

Backplane (interface supp.)	DB1 (interface supp.)	DB2 (interface supp.)	Description (limitations)
2x1GE (copper only)	2xOC-12 POS (fiber only)	n/a	All supported ports available. (No known limitations)
n/a	MIC 2C 2x1GbE (copper only)	2xOC-12 POS (fiber only)	All supported ports available. (Configuration not supported officially)
n/a	2xOC-12 POS (fiber only)	2x1GbE Spin 1 copper	All supported ports available. (Configuration not added yet)
n/a	2xOC-12 POS (fiber only)	2x1GbE Spin 1 A copper	All supported ports available. (Configuration not added yet)

Dual OC-12 POS/Dual Gigabit Ethernet Forwarding Application under VxWorks

Backplane (interface supp.)	DB1 (interface supp.)	DB2 (interface supp.)	Description (limitations)
2x1GE (copper only)	2xOC-12 POS (fiber only)	n/a	All supported ports available. (No known limitations)
n/a	MIC 2C 2x1GbE (copper only)	2xOC-12 POS (fiber only)	All supported ports available. (Configuration not supported officially)
n/a	2xOC-12 POS (fiber only)	2x1GbE Spin 1 copper	All supported ports available. (Configuration not added yet)
n/a	2xOC-12 POS (fiber only)	2x1GbE Spin 1 A copper	All supported ports available. (Configuration not added yet)

Quad Gigabit Ethernet Forwarding Application under VxWorks

Backplane (interface supp.)	DB1 (interface supp.)	DB2 (interface supp.)	Description (limitations)
2x1GE (copper only)	MIC 2C 2x1GbE (copper only)	n/a	All supported ports available. (Configuration not supported officially)
2x1GE (copper only)	2x1GbE Spin 1 copper	n/a	All supported ports available. (Configuration not added yet)
2x1GE (copper only)	2x1GbE Spin 1 A copper	n/a	All supported ports available. (Configuration not added yet)



Appendix B: Verified Hardware Configurations of the IXDP28x1 Platform

Due to a large combination of hardware configurations of the IXDP28x1 platform, not all configurations could be thoroughly tested and verified. The following table lists hardware configurations tested and verified for the IXA SDK 3.51 release.

POS/Ethernet Forwarding Application for IXDP28x1

Backplane (interface supp.)	DB1 (interface supp.)	DB2 (interface supp.)	Description (limitations)
2x1GE (copper only)	4xOC-12 POS (fiber only)	4x1GE Spin 1 copper	All supported ports available. (Limited to 2xOC-12 in DB1 for Firmware 1.0.0.31)
2x1GE (copper only)	4xOC-12 POS (fiber only)	4x1GE Spin 1 A copper	All supported ports available. (Limited to 2xOC-12 in DB1 for Firmware 1.0.0.31)
2x1GE (copper only)	4xOC-12 POS (fiber only)	n/a	POS on the front side and Ethernet on the backplane. (Limited to 2xOC-12 in DB1 for Firmware 1.0.0.31)
2x1GE (copper only)	n/a	4x1GE Spin 1 copper	Only Ethernet ports available.
2x1GE (copper only)	n/a	4x1GE Spin 1 A copper	Only Ethernet ports available.



Appendix C: Preparing IXDP28x1 and IXDP2401 for Production and Performance Testing

The IXDP28x1 and IXDP2401 Advanced Development Platforms are equipped with a Debug Ethernet Port. This port is useful for board evaluation and debugging. However in normal usage, the debug port may cause performance issues since it accesses memory used by the microengines. To start the board without using the debug port, you must start it from the zImage and file system burned on the onboard flash.

To start Linux from the flash, perform the following steps:

1. Let's assume that we have an uncompressed file system in the fs directory. This may be the file system which we normally access through TFTP. To prepare the file system, issue the following command:

```
/opt/hardhat/host/bin/mkcramfs -rb fs cramfs.img
```

2. In RedBoot console, issue the following commands:

```
load -r -b 0x300000 -m tftp cramfs.img
fis create -b 0x300000 -l 0x513000 cramfs

load -r -m tftp -b 0x300000 zImage
fis create -b 0x300000 -l 0xaf000 -r 0xd008000 -e 0xd008000 linux
```

3. Issue the following command:

```
fis list
```

This should produce a printout similar to the one below.

```
ITP-RedBoot> fis list
Name          FLASH addr  Mem addr    Length      Entry point
Loader        0xC4000000  0x00000000  0x00020000  0x00000000
RedBoot       0xC4020000  0x00000000  0x00080000  0x00000000
System Log    0xCDFA0000  0xCDFA0000  0x00020000  0x00000000
RedBoot config 0xCDFDF000  0xCDFDF000  0x00001000  0x00000000
FIS directory 0xCDFE0000  0xCDFE0000  0x00020000  0x00000000
cramfs        0xC47E0000  0x00500000  0x00520000  0x00000000
linux         0xC4D00000  0xD0080000  0x000C0000  0xD0080000
ITP-RedBoot>
```

Consider the "FLASH addr" column to sort the flash partitions. Make sure that the cramfs partitions FLASH address is at least third youngest. If it's not, then remove partitions with younger FLASH addresses other than loader and RedBoot.

4. In the RedBoot console, type the following command:

```
fconfig
```

In the auto-start section, type the following sequence:

```
fis load linux
exec -c "console=ttyS0,115200 root=/dev/mtdblock3 ip=none"
```

Let the configuration be saved to flash. From this point the board should be able to boot up Linux without the debug port being connected to the TFTP server.

5. To download a file from the developer's host machine, connect the debug port with a NIC on the host machine and run the following sequence of commands:

```
ifconfig eth0 <debug port IP address>
mount none -t tmpfs /tmp
cd /tmp
mkdir nfs
```




```
mount <host machine IP address>:/tftpboot nfs -o nolock  
cp nfs/* .
```

```
umount nfs  
ifconfig eth0 down
```

The above script assumes the following:

- the host machine supports NFS services
- the files to be copied are in the tftpboot directory



Appendix D: IXA SDK 3.5 Files Modified for IXA SDK 3.51 Release

This section lists the files that were changed from the previous 3.5 release.

Filename: src\library\xscale\ether_arp\include\ix_cc_arp.h

Modification: Certain lines of code which were not being compiled (using #ifdef 0...#endif) were removed from the file.

The files listed in the table below were modified to update the licensing information.

IXA SDK 3.51 Files With Updated Licensing Information
documentation/Software_Framework/CP-PDK/API/ API Framework.pdf ATM API.pdf Configuration and Management API.pdf DiffServ API.pdf FP Plugin API.pdf IPv6 Forwarding API.pdf IPv6 Transition Mechanisms API.pdf MPLS API.pdf Namespace API.pdf PIL API.pdf
documentation/Software_Framework/CP-PDK/Design/ Binding and Discovery Design.pdf Co-located Transport Plugin Design.pdf Configuration and Management Design.pdf DiffServ Design.pdf FP Module Core Component Design.pdf FP Module Design.pdf Interface Manager Design.pdf IPv4 Design.pdf Namespace Design.pdf PCI App Note.pdf Protocol Support Services Design.pdf Transport Plugin Design.pdf
documentation/Software_Framework/CP-PDK/ docs_api.htm docs_design.htm docs_user.htm images/site_title_roadmap.gif index.htm User/Architecture Overview.pdf User/CPPIUI Guide.pdf User/Getting Started.pdf User/OS Porting Guide.pdf User/Release Notes.pdf
documentation/Software_Framework/ GettingStarted.pdf IXA-SDK/BuildingBlocksDevManual.htm IXA-SDK/BuildingBlocksDevManual.pdf IXA-SDK/BuildingBlocksRefManual.htm IXA-SDK/FrameworkDevManual.htm IXA-SDK/FrameworkRefManual.htm IXA-SDK/GettingStarted.htm IXA-SDK/index.htm readme.txt ReleaseNotes.pdf
src/applications/core_router/oc192_pos_ipv4_mpls/ingress/wbench_project/ scripts/qm_init.ind scripts/reset_settings.ind scripts/rtn_routes.ind scripts/system_setup_a.ind scripts/system_setup_b.ind scripts/wb_settings_ingress_a.ind scripts/wb_settings_ingress_b.ind streams/mpls_pop4.txt streams/mpls_push4.txt streams/mpls_str_pop4.txt streams/mpls_str_push4.txt

IXA SDK 3.51 Files With Updated Licensing Information	
	streams/mppls_str_swap.txt streams/mppls_str_swap_push3.txt streams/mppls_swap.txt streams/mppls_swap_push3.txt
src/applications/core_router/oc192_pos_ipv4_v6/ingress/wbench_project/	scripts/reset_settings.ind scripts/rtn_routes.ind scripts/wb_settings_ingress_a.ind scripts/wb_settings_ingress_b.ind streams/TCS_IPv6v4_decap.txt streams/TCS_IPv6v4_encap.txt streams/TCS_IPv6_default.txt
src/applications/ipv4_diffserv/4oc12_atm/egress/tornado_project/	atm_tx_config/ix_sa_cc_list.c atm_tx_config/ix_sa_symbols.c atm_tx_config/media.c atm_tx_config/ix_sa_registry_data.xml ixa_sdk_dummy.c
src/applications/ipv4_diffserv/4oc12_atm/egress/wbench_project/	scripts/aal5_tx_init.ind scripts/atm_tm_init.ind scripts/csrx_rx_init.ind scripts/llc_encap.ind scripts/qm_cell_init.ind scripts/system_config.ind scripts/system_setup.ind scripts/WredInit.ind ucode/dl_system_config.h ucode/diffserv_pipeline.uc ucode/dispatch_loop.h ucode/dispatch_loop.uc ucode/dl_csrx_rx_sink.uc ucode/dl_mem_map.h ucode/dl_source.uc ucode/dl_system.h ucode/dl_system_config.h ucode/pkthdr_cache.uc ucode/system_init.uc
src/applications/ipv4_diffserv/4oc12_atm/include/bindings.h	
src/applications/ipv4_diffserv/4oc12_atm/ingress/tornado_project/	ixa_sdk_dummy.c atm_rx_config/ix_sa_cc_list.c atm_rx_config/ix_sa_symbols.c atm_rx_config/media.c atm_rx_config/ix_sa_registry_data.xml
src/applications/ipv4_diffserv/4oc12_atm/ingress/wbench_project/	scripts/aal5_rx_hash_table_init_my.ind scripts/aal5_rx_init.ind scripts/ClassifierInit.ind scripts/dbcast_init.ind scripts/QmInit.ind scripts/rtn_init.ind scripts/SRTCMInit.ind scripts/system_setup.ind ucode/diffserv_pipeline.uc ucode/dispatch_loop.uc ucode/dl_mem_map.h ucode/dl_source.uc ucode/dl_system.h ucode/dl_system_config.h ucode/pkthdr_cache.uc ucode/system_init.uc
src/applications/ipv4_diffserv/4oc12_atm/xscale_init/	egress_test_init.c ingress_test_init.c readme.txt
src/applications/ipv4_diffserv/oc48_pos/egress_sphy_mphy4/include/	bindings.h system.h



IXA SDK 3.51 Files With Updated Licensing Information	
src/applications/ipv4_diffserv/oc48_pos/egress_sphy_mphy4/oc48_pos_ipv4_diffserv_egress_config/	source/ix_sa_cc_list.c source/ix_sa_debug.c source/ix_sa_symbols.c ix_sa_registry_data.xml
src/applications/ipv4_diffserv/oc48_pos/egress_sphy_mphy4/source/ixa_sdk_dummy.c	
src/applications/ipv4_diffserv/oc48_pos/egress_sphy_mphy4/wbench_project/	system_init.uc scripts/csix_rx_init.ind scripts/MeterInit.ind scripts/QmInit.ind scripts/SystemInit.ind scripts/WredInit.ind dispatch_loop/diffserv_pipeline.uc dispatch_loop/dispatch_loop.uc dispatch_loop/dl_csix_rx_sink.uc dispatch_loop/dl_source.uc dispatch_loop/dl_system.h dispatch_loop/pkthdr_cache.uc
src/applications/ipv4_diffserv/oc48_pos/ingress/include/	bindings.h system.h
src/applications/ipv4_diffserv/oc48_pos/ingress/oc48_pos_ipv4_diffserv_ingress_config/	source/ix_sa_cc_list.c source/ix_sa_debug.c source/ix_sa_symbols.c ix_sa_registry_data.xml
src/applications/ipv4_diffserv/oc48_pos/ingress/source/ixa_sdk_dummy.c	
src/applications/ipv4_diffserv/oc48_pos/ingress/wbench_project/dispatch_loop/	diffserv_pipeline.uc dispatch_loop.h dispatch_loop.uc dl_source.uc dl_system.h pkthdr_cache.uc system_init.uc
src/applications/ipv4_diffserv/oc48_pos/ingress/wbench_project/scripts/	classifier_6t_init.ind dbcast_init.ind dscp_classifier_init.ind MeterInit.ind QmInit.ind rtm_init.ind SystemInit.ind rtm_routes.ind
src/applications/ipv4_diffserv/oc48_pos/readme.txt	
src/applications/ipv4_diffserv/oc48_pos/xscale_init/	egress_test_conf.c ingress_test_conf.c
src/applications/ipv4_forwarder/4gb_ethernet/	egress/ixa_sdk_dummy.c egress/oc48_ethernet_egress_config/include/sa/internal/readme.txt egress/oc48_ethernet_egress_config/ix_sa_registry_data.xml ingress/ixa_sdk_dummy.c ingress/oc48_ethernet_ingress_config/include/sa/internal/readme.txt ingress/oc48_ethernet_ingress_config/ix_sa_registry_data.xml
src/applications/ipv4_forwarder/4oc12_aa15/	ingress/wbench_project/list/readme.txt ingress/wbench_project/log/readme.txt ingress/wbench_project/scripts/aa15_rx_hash_table_init.ind ingress/wbench_project/scripts/aa15_rx_init.ind ingress/wbench_project/scripts/dbcast_init.ind ingress/wbench_project/scripts/qm_init.ind ingress/wbench_project/scripts/rtm_init.ind ingress/wbench_project/scripts/rtm_routes.ind ingress/wbench_project/scripts/system_setup.ind xscale_init/hw_support_routines.c xscale_init/hw_support_routines.h xscale_init/Makefile



IXA SDK 3.51 Files With Updated Licensing Information	
	xscale_init/XSCALEgnube/readme.txt
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/4oc12_pos_6gb_ethernet_2801_config/	2801_hardware.h Makefile.linux_kernel ix_cc_pos_ppp_stub.c ix_sa_cc_list.c ix_sa_registry_data.xml ix_sa_symbols.c pos_ethernet_2801_config_module.c
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/include/bindings.h	
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/linux_scripts/	make_linux_kernel_devices.sh rtm_config_linux.sh run_loc48_6gb run_4oc12_6gb
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/Makefile.linux_kernel	
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/wbench_project/	Makefile pos_ethernet_memory.h
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/wbench_project/dispatch_loop/	dispatch_loop.h dispatch_loop.uc dl_source.uc dl_system.h pkthdr_cache.uc pos_ethernet_dl_source.uc pos_ethernet_dl_system.h pos_ethernet_ipv4.uc pos_ethernet_system_init.uc system_init.uc wred_defines.h xscale_sink.uc
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/wbench_project/scripts/	dbcast_init.ind ether_init.ind ethernet_ipv4_system_setup.ind l2_encap_init.ind qm_init.ind rtm_init.ind rtm_routes.ind support_routines.ind wred.ind
src/applications/ipv4_forwarder/4oc12_pos_6gb_ethernet_2801/wbench_project/xscale_init/	ethernet_rtm_routes.c l2_encap_init.c pos_ethernet_2801_init.c vallejo.c wred.c xscale_init.h linux/Makefile-linux linux/eth_drv_cfg.c linux/linux_mmap_lib.c linux/linux_mmap_lib.h linux/pos_ethernet_linux_init.c linux/start_app linux/start_app_spin2
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/include/bindings.h	
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/init_scripts/	init.sh make_linux_kernel_devices.sh oc12_atm_gbeth_2401_run.sh test_configuration_m3.sh
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/linux/	include/linux_mmap_lib.h include/xscale_init.h Makefile-linux scripts/init.sh source/drv_cfg.c source/ethernet_rtm_routes.c



IXA SDK 3.51 Files With Updated Licensing Information	
	source/l2_encap_init.c source/linux_mmap_lib.c source/oc12_atm_gbeth_2401_linux_init.c
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/Makefile.linux_microcode	
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/scripts/	aal5_rx_hash_table_init_my.ind aal5_rx_init.ind aal5_tx_init.ind atm_tm_init.ind dbcast_init.ind EthRXInit.ind l2_encap_init.ind llc_encap.ind memory_map.ind PacketQmInit.ind qm_cell_init.ind rtm_init.ind rtm_routes.ind system_setup.ind
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/ucode/	common_rx.uc common_rx_init.uc common_tx.uc dispatch_loop.uc dl_mem_map.h dl_source.uc dl_system.h dl_system_config.h forwarder_pipeline.uc pkthdr_cache.uc system_init.uc test_macros.uc
src/applications/ipv4_forwarder/oc12_atm_gbeth_2401/xscale_config/	include/sa/internal/readme.txt ix_cc_sarctrl_config.c ix_sa_cc_list.c ix_sa_global_tables.c ix_sa_registry_data.xml ix_sa_symbols.c
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/	bindings.h include/bindings.h ixa_sdk_dummy.c linux_scripts/make_linux_kernel_devices.sh linux_scripts/oc12_pos_gbeth_2401_run.sh linux_scripts/pos_eth_rtm_config_linux.sh Makefile.linux_kernel Makefile-linux oc12_pos_gbeth_2401.scr pos_eth_rtm_config.scr project.cmd t2.bat t3.bat
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/wbench_project/	README.txt Makefile oc12_pos_gbeth_memory.h
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/wbench_project/dispatch_loop/	dispatch_loop.h dispatch_loop.uc dl_source.uc dl_system.h oc12_pos_gbeth_dl_source.uc oc12_pos_gbeth_dl_system.h oc12_pos_gbeth_system_init.uc pkthdr_cache.uc pos_eth_ipv4.uc system_init.uc
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/wbench_project/scripts/	

IXA SDK 3.51 Files With Updated Licensing Information	
	dbcast_init.ind ether_init.ind ethernet_ipv4_system_setup.ind l2_encap_init.ind qm_init.ind rtm_init.ind rtm_routes.ind support_routines.ind
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/wbench_project/xscale_init/	ethernet_rtm_routes.c ixf6048.c l2_encap_init.c oc12_pos_gbeth_2401.scr oc12_pos_gbeth_2401_init.c t1.bat project.cmd vallejo.c xscale_init.h linux/Makefile-linux linux/drv_cfg.c linux/linux_mmap_lib.c linux/linux_mmap_lib.h linux/oc12_pos_gbeth_2401_linux_init.c linux/spi23_to_front.c linux/start_pos_gbeth
src/applications/ipv4_forwarder/oc12_pos_gbeth_2401/oc12_pos_gbeth_2401_config/	ix_sa_registry_data.xml 2401_hardware.h Makefile.linux_kernel ix_cc_pos_ppp_stub.c ix_cc_pos_ppp_stub.h ix_sa_cc_list.c ix_sa_symbols.c main.c oc12_pos_gbeth_2401_config_module.c
src/applications/ipv4_forwarder/oc48_aal5/egress/wbench_project/	scripts/aal5_tx_init.ind scripts/csix_rx_init.ind scripts/dl_system_h.ind scripts/llc_encap.ind scripts/qm_cell_init.ind scripts/system_setup.ind streams/csix_input_oc48.txt
src/applications/ipv4_forwarder/oc48_aal5/ingress/wbench_project/	list/readme.txt log/readme.txt scripts/aal5_rx_hash_table_init.ind scripts/aal5_rx_init.ind scripts/dbcast_init.ind scripts/qm_init.ind scripts/rtm_init.ind scripts/rtm_routes.ind scripts/system_setup.ind
src/applications/ipv4_forwarder/oc48_pos/	egress_sphy_mphy4/ixa_sdk_dummy.c egress_sphy_mphy4/oc48_sphy_pos_egress_config/include/sa/internal/readme.txt egress_sphy_mphy4/oc48_sphy_pos_egress_config/ix_sa_registry_data.xml ingress/ixa_sdk_dummy.c ingress/oc48_pos_ingress_config/include/sa/internal/readme.txt ingress/oc48_pos_ingress_config/ix_sa_registry_data.xml ingress/readme_running_pos_pipeline_with_corecomponents.txt
src/applications/ipv4_forwarder/quad_gbeth_2401/	bindings.h ethernet_rtm_config.scr include/bindings.h ixa_sdk_dummy.c linux_scripts/ethernet_rtm_config_linux.sh linux_scripts/make_linux_kernel_devices.sh linux_scripts/quad_gbeth_2401_run.sh



IXA SDK 3.51 Files With Updated Licensing Information	
	project.cmd quad_gbeth_2401.scr t.bat t2.bat t3.bat
src/applications/ipv4_forwarder/quad_gbeth_2401/quad_gbeth_2401_config/	include/sa/internal/build_header.h include/sa/internal/readme.txt 2401_hardware.h ix_sa_cc_list.c ix_sa_registry_data.xml ix_sa_symbols.c quad_gbeth_2401_config_module.c
src/applications/ipv4_forwarder/quad_gbeth_2401/wbench_project/dispatch_loop/	dispatch_loop.h dispatch_loop.uc dl_source.uc dl_system.h ethernet_ipv4.uc pkthdr_cache.uc quad_gbeth_dl_source.uc quad_gbeth_dl_system.h quad_gbeth_system_init.uc system_init.uc
src/applications/ipv4_forwarder/quad_gbeth_2401/wbench_project/	list/readme.txt Makefile quad_gbeth_memory.h README.txt
src/applications/ipv4_forwarder/quad_gbeth_2401/wbench_project/scripts/	dbcast_init.ind ether_init.ind ethernet_ipv4_system_setup.ind l2_encap_init.ind qm_init.ind rtm_init.ind rtm_routes.ind support_routines.ind
src/applications/ipv4_forwarder/quad_gbeth_2401/wbench_project/xscale_init/	linux/Makefile-linux linux/eth_drv_cfg.c linux/linux_mmap_lib.c linux/linux_mmap_lib.h linux/quad_gbeth_2401_linux_init.c linux/start_qbeth ethernet_rtm_routes.c l2_encap_init.c project.cmd quad_gbeth_2401.scr quad_gbeth_2401_init.c t1.bat vallejo.c xscale_init.h
src/applications/ipv4_v6_forwarder/10gb_ethernet/10x1GbE_egress/wbench_project/	scripts/l2_table_init.ind scripts/perf.ind scripts/qm_init.ind scripts/scheduler_init.ind scripts/system_setup.ind scripts/wb_settings.ind streams/csix_128b_1q_1blade.txt streams/csix_2048b_1q_1blade.txt streams/csix_256b_1q_1blade.txt streams/csix_5120b_1q_1blade.txt streams/csix_64b_1q_1blade.txt streams/csix_9216b_1q_1blade.txt
src/applications/ipv4_v6_forwarder/10gb_ethernet/10x1GbE_ingress/wbench_project/	scripts/ether_init.ind scripts/perf.ind

IXA SDK 3.51 Files With Updated Licensing Information	
	scripts/rtm_routes.ind scripts/system_setup.ind scripts/wb_settings.ind
src/applications/ipv4_v6_forwarder/10gb_ethernet/10x1GbE_xscale_init/	ipv6_init.c linux_scripts/emi1 linux_scripts/emi2 linux_scripts/emi3 linux_scripts/emi4 linux_scripts/ess linux_scripts/imi1 linux_scripts/imi2 linux_scripts/imi3 linux_scripts/imi4 linux_scripts/iss linux_scripts/start.sh
src/applications/ipv4_v6_forwarder/10gb_ethernet/1x10GbE_egress/wbench_project/	scripts/l2_table_init.ind scripts/perf.ind scripts/qm_init.ind scripts/scheduler_init.ind scripts/system_setup.ind scripts/wb_settings.ind streams/csix_128b_16q_1blade.txt streams/csix_129b_1q_1blade.txt streams/csix_2048b_1q_1blade.txt streams/csix_256b_16q_1blade.txt streams/csix_42b_16q_64blade.txt streams/csix_42b_1q_1blade.txt streams/csix_42b_4q_1blade.txt streams/csix_64b_1q_1blade.txt streams/csix_9216b_16q_64blade.txt
src/applications/ipv4_v6_forwarder/10gb_ethernet/1x10GbE_ingress/wbench_project/	scripts/ether_init.ind scripts/perf.ind scripts/rtm_routes.ind scripts/system_setup.ind scripts/wb_settings.ind
src/applications/ipv4_v6_forwarder/10gb_ethernet/1x10GbE_xscale_init/ipv6_init.c	
src/applications/ipv4_v6_forwarder/4gb_ethernet/ingress/	ixa_sdk_dummy.c oc48_ethernet_ipv6_ingress_config/include/sa/internal/readme.txt oc48_ethernet_ipv6_ingress_config/ix_sa_registry_data.xml readme.txt
src/applications/ipv4_v6_forwarder/oc192_pos/egress_sphy_mphy4/wbench_project/scripts/	scheduler_init.ind perf.ind qm_init.ind scheduler_init.ind system_setup.ind wb_settings.ind
src/applications/ipv4_v6_forwarder/oc192_pos/egress_sphy_mphy4/wbench_project/streams/	csix_128b_16q_1blade.txt csix_129b_1q_1blade.txt csix_2048b_1q_1blade.txt csix_256b_16q_1blade.txt csix_42b_16q_64blade.txt csix_42b_1q_1blade.txt csix_42b_256q_1oport.txt csix_42b_4q_1blade.txt csix_9216b_16q_64blade.txt
src/applications/ipv4_v6_forwarder/oc192_pos/ingress/wbench_project/scripts/	rtm_routes.ind wb_settings.ind
src/applications/ipv4_v6_forwarder/oc192_pos/ingress/wbench_project/streams/	TCS_IPv6_0001.txt TCS_IPv6_0002.txt TCS_IPv6_0004.txt TCS_IPv6_0005.txt



IXA SDK 3.51 Files With Updated Licensing Information	
	TCS_IPv6_0007.txt TCS_IPv6_0008.txt TCS_IPv6_0010.txt TCS_IPv6_0012.txt TCS_IPv6_0014.txt TCS_IPv6_0015.txt TCS_IPv6_default.txt TCS_IPv6_Multiple_Next_Hops.txt TCS_IPv6_Stats_1.txt TCS_IPv6_Stats_2.txt TCS_IPv6_Stats_3.txt TCS_IPv6_Stats_4.txt TCS_IPv6v4_decap.txt TCS_IPv6v4_encap.txt
src/applications/ipv4_v6_forwarder/oc192_pos/ingress/wbench_project/traffic_specs/	TCS_IPv6_0001.tcs TCS_IPv6_0002.tcs TCS_IPv6_0004.tcs TCS_IPv6_0005.tcs TCS_IPv6_0007.tcs TCS_IPv6_0008.tcs TCS_IPv6_0010.tcs TCS_IPv6_0012.tcs TCS_IPv6_0014.tcs TCS_IPv6_0015.tcs TCS_IPv6_Multiple_Next_Hops.tcs TCS_IPv6_Stats_1.tcs TCS_IPv6_Stats_2.tcs TCS_IPv6_Stats_3.tcs TCS_IPv6_Stats_4.tcs TCS_IPv6v4_decap.tcs TCS_IPv6v4_encap.tcs
src/applications/mppls/oc192_pos/egress_sphy_mphy4/wbench_project/scripts/	perf.ind qm_init.ind scheduler_init.ind system_setup.ind wb_settings.ind
src/applications/mppls/oc192_pos/egress_sphy_mphy4/wbench_project/streams/	csix_128b_16q_1blade.txt csix_129b_1q_1blade.txt csix_2048b_1q_1blade.txt csix_256b_16q_1blade.txt csix_42b_16q_64blade.txt csix_42b_1q_1blade.txt csix_42b_256q_1oport.txt csix_42b_4q_1blade.txt csix_9216b_16q_64blade.txt
src/applications/mppls/oc192_pos/ingress/wbench_project/	scripts/perf.ind scripts/qm_init.ind scripts/rtn_routes.ind scripts/system_setup.ind scripts/wb_settings.ind
src/applications/mppls/oc192_pos/xscale_init/mppls_nhlfe.c	
src/applications/mppls/oc48_pos/egress_mphy16/wbench_project/	dispatch_loop/dispatch_loop.h dispatch_loop/dispatch_loop.uc dispatch_loop/dl_source.uc dispatch_loop/dl_system.h log/readme.txt scripts/csix_rx_init.ind scripts/qm_init.ind scripts/system_setup.ind system_init.uc
src/applications/mppls/oc48_pos/egress_sphy_mphy4/	include/bindings.h oc48_pos_mppls_egress_config/source/ix_sa_cc_list.c oc48_pos_mppls_egress_config/source/ix_sa_debug.c

IXA SDK 3.51 Files With Updated Licensing Information	
	oc48_pos_mpls_egress_config/source/ix_sa_symbols.c oc48_pos_mpls_egress_config/ix_sa_registry_data.h oc48_pos_mpls_egress_config/ix_sa_registry_data.xml source/ixa_sdk_dummy.c
src/applications/mppls/oc48_pos/egress_sphy_mphy4/wbench_project/	dispatch_loop/dispatch_loop.h dispatch_loop/dispatch_loop.uc dispatch_loop/dl_source.uc dispatch_loop/dl_system.h log/readme.txt scripts/wb_settings.ind scripts/system_setup.ind system_init.uc
src/applications/mppls/oc48_pos/ingress/	include/bindings.h include/system.h oc48_pos_mpls_ingress_config/ix_sa_registry_data.h oc48_pos_mpls_ingress_config/source/ix_sa_cc_list.c oc48_pos_mpls_ingress_config/source/ix_sa_debug.c oc48_pos_mpls_ingress_config/source/ix_sa_symbols.c oc48_pos_mpls_ingress_config/ix_sa_registry_data.xml source/ixa_sdk_dummy.c
src/applications/mppls/oc48_pos/ingress/wbench_project/	dispatch_loop/dispatch_loop.h dispatch_loop/dispatch_loop.uc dispatch_loop/dl_mpls_ipv4.uc dispatch_loop/dl_source.uc dispatch_loop/dl_system.h dispatch_loop/kick_start.uc dispatch_loop/pkthdr_cache.uc list/readme.txt log/readme.txt scripts/ipv4_init.ind scripts/mppls_init.ind scripts/mppls_ipv4_system_setup.ind scripts/qm_init.ind scripts/rtn_routes.ind streams/streams.txt system_init.uc
src/applications/mppls/oc48_pos/readme.txt	
src/applications/sysapp_common/source/ix_sa_registry_data.xml	
src/building_blocks/atmsar/	atmsar_common/Makefile-linux atmsar_main/Makefile-linux source/ut/scripts_example.txt
src/building_blocks/ipv6/scripts/	ipv4_rtm.ind ipv6_init.ind ipv6_rtm.ind ipv6_rtm_routes.ind v6v4_config.ind v6v4_init.ind
src/building_blocks/ipv6/v6_forwarder/v6_forwarder_core/source/ix_cc_ipv6_nd.c	
src/building_blocks/mppls/	include/mppls_defs.h microcode/mppls.h microcode/mppls_ftn.uc microcode/mppls_ilm.uc microcode/mppls_util.uc
src/building_blocks/mppls/mppls_core/include/cc/	internal/ix_cc_mpls_fwder.h internal/ix_cc_mpls_icmp.h internal/ix_cc_mpls_internal.h internal/ix_cc_mpls_lsp.h internal/ix_cc_mpls_msg.h internal/ix_cc_mpls_nhlfe.h internal/ix_cc_mpls_pkt_handler.h ix_cc_mpls.h
src/building_blocks/mppls/mppls_core/source/	

IXA SDK 3.51 Files With Updated Licensing Information	
	ix_cc_mpls.c ix_cc_mpls_fragmentation.c ix_cc_mpls_fwder.c ix_cc_mpls_icmp.c ix_cc_mpls_lsp.c ix_cc_mpls_msg_handler.c ix_cc_mpls_msg_helper.c ix_cc_mpls_nhlfe.c ix_cc_mpls_pkt_handler.c
src/building_blocks/qos/classifier_6t/	classifier_6t_core/include/cc/ix_cc_classifier_6t.h classifier_6t_core/include/cc/ix_cc_classifier_6t_api.h classifier_6t_core/include/cc/ix_cc_classifier_6t_hash.h classifier_6t_core/include/cc/ix_cc_classifier_6t_hash_comp.h classifier_6t_core/include/cc/ix_cc_classifier_6t_msg.h classifier_6t_core/include/cc/ix_cc_classifier_6t_stats.h classifier_6t_core/include/cc/ix_cc_classifier_6t_utils.h classifier_6t_core/source/ix_cc_classifier_6t.c classifier_6t_core/source/ix_cc_classifier_6t_api.c classifier_6t_core/source/ix_cc_classifier_6t_hash.c classifier_6t_core/source/ix_cc_classifier_6t_hash_comp.c classifier_6t_core/source/ix_cc_classifier_6t_msg.c classifier_6t_core/source/ix_cc_classifier_6t_stats.c classifier_6t_core/source/ix_cc_classifier_6t_utils.c include/classifier_6t_defs.h microcode/classifier_6t.h microcode/classifier_6t.uc
src/building_blocks/qos/diffserv.h	
src/building_blocks/qos/dscp_classifier/dscp_classifier_core/	include/cc/ix_cc_dscp_classifier_msghlp.h include/cc/ix_cc_dscp_classifier.h include/cc/internal/dscp_classifier_types.h include/cc/internal/dscp_classifier_registry.h include/cc/internal/dscp_classifier_misc.h include/cc/internal/dscp_classifier_internal.h include/cc/internal/dscp_classifier_defs.h include/cc/internal/dscp_classifier_defaults.h include/cc/internal/dscp_classifier_debug.h include/cc/internal/dscp_classifier_api.h source/ix_cc_dscp_classifier_registry.c source/ix_cc_dscp_classifier_pkt_handlers.c source/ix_cc_dscp_classifier_msghlp.c source/ix_cc_dscp_classifier_msg_handler.c source/ix_cc_dscp_classifier_misc.c source/ix_cc_dscp_classifier_init.c source/ix_cc_dscp_classifier_fini.c source/ix_cc_dscp_classifier_debug.c source/ix_cc_dscp_classifier_api.c
src/building_blocks/qos/dscp_classifier/microcode/	dscp_classifier.h dscp_classifier.uc
src/building_blocks/qos/dscp_marker/microcode/	dscp_marker.h dscp_marker.uc
src/building_blocks/qos/qm_diffserv/microcode/	qm_diffserv.h qm_diffserv.uc qm_diffserv_macro.uc qm_diffserv_message.uc
src/building_blocks/qos/scheduler_diffserv/microcode	scheduler_diffserv.h scheduler_diffserv.uc scheduler_diffserv_ddr.uc scheduler_diffserv_qm.uc
src/building_blocks/qos/tc_meter/	include/tc_meter_defs.h microcode/tc_meter.h microcode/tc_meter.uc microcode/tc_meter_init.uc

IXA SDK 3.51 Files With Updated Licensing Information	
	microcode/tc_meter_utils.uc
src/building_blocks/qos/tc_meter/tc_meter_core/	include/cc/internal/ix_cc_tc_meter_types.h include/cc/internal/ix_cc_tc_meter_registry.h include/cc/internal/ix_cc_tc_meter_misc.h include/cc/internal/ix_cc_tc_meter_defs.h include/cc/internal/ix_cc_tc_meter_api.h include/cc/ix_cc_tc_meter_msg_helpers.h include/cc/ix_cc_tc_meter.h source/ix_cc_tc_meter_pkt_handlers.c source/ix_cc_tc_meter_msg_helpers.c source/ix_cc_tc_meter_msg_handler.c source/ix_cc_tc_meter_init.c source/ix_cc_tc_meter_fini.c source/ix_cc_tc_meter_api.c
src/building_blocks/qos/wred/	include/wred_defs.h microcode/wred.h microcode/wred.uc microcode/wred_init.uc microcode/wred_utils.uc
src/building_blocks/qos/wred/wred_core/include/cc/	internal/ix_cc_wred_api.h internal/ix_cc_wred_defaults.h internal/ix_cc_wred_defs.h internal/ix_cc_wred_misc.h internal/ix_cc_wred_registry.h internal/ix_cc_wred_types.h ix_cc_wred.h ix_cc_wred_msghlp.h
src/building_blocks/qos/wred/wred_core/source/	ix_cc_wred_api.c ix_cc_wred_fini.c ix_cc_wred_init.c ix_cc_wred_msg_handler.c ix_cc_wred_msghlp.c ix_cc_wred_pkt_handlers.c
src/building_blocks/queue_manager/scripts/qm_init.ind	
src/building_blocks/rx/core/atm_rx/Makefile-linux	
src/building_blocks/rx/microengine/csix_rx/scripts/csix_rx_init.ind	
src/building_blocks/scheduler/scheduler_atm_tm4.1/core/atm_tm41/Makefile-linux	
src/building_blocks/scheduler/scheduler_packet_oc192/microcode/	common_constants.h fold.uc
src/building_blocks/stack_driver/core/ix_cc_stkdrv_vidd_linux.c	
src/building_blocks/tx/core/	atm_tx/Makefile-linux l2_encap/llc_snap_encap/src/ix_cc_llc_snap_linux_kernel_module.c l2_encap/llc_snap_encap_config/source/ix_cc_llc_snap_config_linux_kernel_module.c
src/cp_pdk/.bpfinc.sh	
src/cp_pdk/Application.make	
src/cp_pdk/common/DataTypes/	Makefile src/hwaddr.c src/ipaddr.c src/list.c src/log.c src/pdk_callback.c
src/cp_pdk/common/Encap/	inc/fppdecap_npf_ds.h inc/fppencap_npf_ds.h Makefile src/fppdecap_npf_ds.c src/fppencap_npf_ds.c
src/cp_pdk/common/inc/	hwaddr.h list.h log.h pdk_callback.h



IXA SDK 3.51 Files With Updated Licensing Information	
	pdk_callback_types.h pdk_macros.h
src/cp_pdk/common/Interconnect/Makefile	
src/cp_pdk/common/pil/ common/pillist.c common/pilreg.c inc/npfpdk_def.h inc/npfpdk_type.h inc/pil.h inc/pil_lnx.h inc/pillist.h inc/pilreg.h inc/stdint-old.h Makefile unix/Makefile unix/pil_int.h unix/pilinit.c vxworks/Makefile vxworks/Makefile vxworks/pil_vx.h vxworks/pilcs.c vxworks/pilthd.c	
src/cp_pdk/common/TPCodeGen/ inc/functions.h inc/list.h inc/stack.h inc/types.h Makefile src/decap.c src/defs.l src/defs.y src/encap.c src/functions.c src/list.c src/main.c src/stack.c src/types.c src/typesinternal.h	
src/cp_pdk/Component.make	
src/cp_pdk/configure.sh	
src/cp_pdk/Container.make	
src/cp_pdk/ControlPlane/APIImplementations/ ATM/Makefile DiffServ/inc/ds.h DiffServ/Makefile DiffServ/src/ds.c DiffServ/src/npf_ds_api.c IM/Makefile IPv4/Makefile IPv4/src/ipv4_modules.c Makefile	
src/cp_pdk/ControlPlane/CoreBlocks/ BindingDiscovery/inc/bind_cap_disc.h BindingDiscovery/Makefile ConfigManagment/Makefile L2IDManager/Makefile Makefile NameSpace/Makefile PacketHandler/inc/pkt_hdlr.h PacketHandler/inc/vip_tunnel.h PacketHandler/Makefile PacketHandler/src/Makefile PacketHandler/src/ph_vx.c VIDDController/inc/vidd.h VIDDController/Makefile VIDDController/src/tun_dev.c	
src/cp_pdk/ControlPlane/DataRelayShim/Makefile	
src/cp_pdk/ControlPlane/Defines.make	
src/cp_pdk/ControlPlane/inc/	

IXA SDK 3.51 Files With Updated Licensing Information	
	pdk_bd.h pdk_ipv4.h pdk_ph.h pdk_vic.h
	src/cp_pdk/ControlPlane/Makefile
	src/cp_pdk/ControlPlane/PDKManager/ inc/dynamicmodule.h Makefile src/pdkdynload.c src/pdkmgr.c
	src/cp_pdk/ControlPlane/TransportPlugin/ Makefile src/fppcallback.c
	src/cp_pdk/cppui/build/ inc/cppui_atm.h inc/cppui_common.h inc/cppui_diffserv.h inc/cppui_interface.h inc/cppui_ipv4.h inc/cppui_namespace.h inc/cppui_rcm.h Makefile src/cppui_atm.c src/cppui_callback.c src/cppui_diffserv.c src/cppui_input.c src/cppui_interface.c src/cppui_ipv4.c src/cppui_namespace.c src/cppui_rcm.c
	src/cp_pdk/cppui/gen/ gen.py main.xml parse
	src/cp_pdk/cppui/gen/xml/ atm.xml atmFunctions.xml common.xml diffserv.xml diffservFunctions.xml enums.xml eventHandlerFunctions.xml events.xml ifFunctions.xml interface.xml ipv4.xml ipv4_unified.xml ipv4Functions.xml lanInterface.xml ns.xml nsFunctions.xml rcm.xml utilFunctions.xml
	src/cp_pdk/cppui/ui/cppui.py
	src/cp_pdk/cppui/ui/ts/modules/atm/ atm_code_Coverage_new.ts atm_ipv4_interface_set.ts atm_tests.ts basic_atm_setup.ts readme.txt
	src/cp_pdk/cppui/ui/ts/modules/ds/ CreateConfig1.ts CreateConfig2.ts CreateConfig3.ts CreateConfig4.ts CreateConfig5.ts CreateRoutes.ts DeleteConfig1.ts DeleteConfig2.ts



IXA SDK 3.51 Files With Updated Licensing Information	
	DeleteConfig3.ts DeleteConfig4.ts DeleteConfig5.ts README
src/cp_pdk/cppui/ui/ts/modules/interface/	LAN_1Interface.ts POS_1Interface.ts
src/cp_pdk/cppui/ui/ts/modules/ipv4/helpscripts/	Discrete/ipv4_disc_all_positive.ts Discrete/ipv4_disc_add_del_route.ts Discrete/ipv4_disc_all_negative.ts Discrete/readme.txt Interface/ipv4_create_bind_if_lan.ts Interface/readme.txt readme.txt Table/ipv4_addres_table_create.ts Table/ipv4_fib_table_create.ts Table/ipv4_nhop_table_create.ts Table/ipv4_prefix_table_create.ts Table/readme.txt Unified/ipv4_unif_all_negative.ts Unified/ipv4_unif_all_positive.ts Unified/ipv4_unif_add_del_route.ts Unified/readme.txt
src/cp_pdk/cppui/ui/ts/modules/ipv4/testscripts/	common/ipv4_setup_lan_disc_tables.ts common/ipv4_setup_lan_unif_tables.ts common/readme.txt negative/ipv4_lan_unif_all_negative.ts negative/ipv4_lan_disc_all_negative.ts negative/readme.txt positive/ipv4_lan_disc_all_positive.ts positive/ipv4_lan_unif_all_positive.ts positive/readme.txt readme.txt routeupdate/ipv4_lan_disc_adddel_route.ts routeupdate/ipv4_lan_unif_adddel_route.ts routeupdate/readme.txt
src/cp_pdk/cppui/ui/ts/modules/ns/	FE_1_NAMESPACE.ts FE_ID1_1PORT_NAMESPACE.ts FE_ID1_2PORTS_NAMESPACE.ts
src/cp_pdk/Defines.make	
src/cp_pdk/env_tor.sh	
src/cp_pdk/FinalContainer.make	
src/cp_pdk/ForwardingPlane/	DataRelayShim/Makefile Defines.make FPManager/Makefile
src/cp_pdk/ForwardingPlane/FPModule/	ATMManager/Makefile BindingDiscovery/Makefile ConfigManager/Makefile EventManager/Makefile inc/pkt_hdlr_stub.c.h IPV4Manager/Makefile IPV4Manager/src/ipv4_mgr-stub.c
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/cc/	fragmentation/checksum.h fragmentation/fragment.h fragmentation/ip4hdr.h ix_atm.h ix_cc_arp.h ix_cc_atm.h ix_cc_atm_pos_tx.h ix_cc_atmr_x_cci.h ix_cc_atmsar.h ix_cc_classifier_6t.h ix_cc_classifier_6t_api.h ix_cc_classifier_6t_hash.h

IXA SDK 3.51 Files With Updated Licensing Information

```

ix_cc_classifier_6t_hash_comp.h
ix_cc_classifier_6t_msg.h
ix_cc_classifier_6t_stats.h
ix_cc_classifier_6t_utils.h
ix_cc_csix_rx.h
ix_cc_csix_tx.h
ix_cc_dscp_classifier_msghlp.h
ix_cc_eth_rx.h
ix_cc_eth_tx.h
ix_cc_fpm_common.h
ix_cc_fpm_core.h
ix_cc_fpm_proxy.h
ix_cc_fragmentation.h
ix_cc_genex.h
ix_cc_genexts.h
ix_cc_hash_table.h
ix_cc_hash_table128.h
ix_cc_index_pool.h
ix_cc_ipv4.h
ix_cc_l2tm.h
ix_cc_llc_snap_encap.h
ix_cc_mpls.h
ix_cc_msup.h
ix_cc_pos_rx.h
ix_cc_qm.h
ix_cc_qm_frmwrk.h
ix_cc_reg_util.h
ix_cc_rtmv4.h
ix_cc_sched.h
ix_cc_slist.h
ix_cc_stkdrv.h
ix_cc_stkdrv_common.h
ix_cc_stkdrv_pktclass.h
ix_cc_stkdrv_tm.h
ix_cc_stkdrv_vidd_linux.h
ix_cc_tc_meter_msg_helpers.h
ix_cc_wred_msghlp.h

```

src/cp_pdk/ForwardingPlane/FModule/ixaheaders/build/include/cc/internal/

```

internal_arp.h
internal_error.h
internal_genex.h
internal_hash_table.h
internal_hash_table128.h
internal_msup.h
internal_sig.h
internal_stkdrv.h
internal_stkdrv_pktclass.h
ix_cc_atm_pos_tx_int.h
ix_cc_atm_pos_tx_ixf6048_regs.h
ix_cc_csix_rx_int.h
ix_cc_csix_tx_int.h
ix_cc_eth_rx_internal.h
ix_cc_eth_tx_drv_wrapper.h
ix_cc_eth_tx_int.h
ix_cc_pos_rx_int.h
ix_cc_qm_internal.h
ix_cc_sched_internal.h
ix_cc_wred_api.h

```

src/cp_pdk/ForwardingPlane/FModule/ixaheaders/build/include/cc/ipv4/internal/

```

fragmentation_support.h
header_defs.h
header_validation.h
icmp.h
icmp_queue.h
ip_options.h
ipv4_fwdr.h
ix_cc_ipv4_dbcast.h
ix_cc_ipv4_fini.h
ix_cc_ipv4_init.h

```



IXA SDK 3.51 Files With Updated Licensing Information	
	ix_cc_ipv4_msg_handler.h ix_cc_ipv4_prop.h utils.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/cc/	llc_snap_decap.h l2tm/internal/internal_l2tm.h l2tm/internal/internal_named.h l2tm/internal/shared.h rtmv4/nhdb.h rtmv4/internal/internal_nhdb.h rtmv4/internal/internal_rtmap.h shim_ipv4_mgr.h shim_list.h shim_mgr.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/cci/	cc.h cci_defs.h cci_error.h cci_main.h cci_types.h engine.h policy.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/cci/internal/	internal_cc.h internal_cci_error.h internal_cci_handles.h internal_eci_node.h internal_engine.h internal_event.h internal_exe_ctrl_if.h internal_policy.h internal_tk_notify_if.h internal_token_proc_container.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/	dl_system.h ipv4_fwder_uc.h ipv4_mcast_fwder_uc.h ix_cci.h ix_lkup.h ix_rm.h l2_config_linux_kernel_module.h lkup/sw.h lkup/swlpmv4.h lkup/swlpmv6.h lkup/internal/internal_swlpmv4.h lkup/internal/internal_swlpmv6.h mac_config_linux_kernel_module.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/rm/	atomic_operations.h buffer.h communication.h configuration_property.h counter_64bit.h fast_memory_operations.h hardware.h hash.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/rm/internal/	internal_buffer.h internal_communication.h internal_configuration_property.h internal_counter_64bit.h internal_hardware.h internal_hash.h internal_me_xscale_locks.h internal_memory.h internal_microengine.h internal_pci_communication.h internal_remote_communication.h internal_support.h



IXA SDK 3.51 Files With Updated Licensing Information	
	internal_sync.h internal_system.h internal_tk_input_notify.h internal_version.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/rm/	me_notification.h me_xscale_locks.h memory.h microengine.h remote_communication.h symbols.h sync_mechanism.h system.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/route_config_linux_kernel_module.h	
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/build/include/sa/	ix_sa.h ix_sa_cc_list.h ix_sa_linux_kernel_module.h internal/egress_internal_registry_data_linux.h internal/ingress_internal_registry_data_linux.h internal/internal_env_data.h internal/internal_exe.h internal/internal_registry.h internal/internal_sa.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/me_tools/include/	cmb_api.h cmb_api_ex.h core_io.h dbgMe.h dbgMeInfo.h dbgMe_def.h delay.h foreign_model_user.h halMev2Api.h halMmap.h hal_dram.h hal_global.h hal_mev2.h hal_scratch.h hal_sram.h iostyle.h ix_oss1.h ixptype.h MeIntrDrv.h me_constants.h mmap.h NetTrafficSimInterface.h osApi.h ostype.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/me_tools/include/oss1_include/	ix_error.h ix_macros.h ix_os_type.h ix_symbols.h ix_types.h ix_uint128_type.h oss1.h vssver.scc linux_kernel/internal_os_types.h linux_kernel/vssver.scc linux_user/internal_os_types.h linux_user/vssver.scc qnx/internal_os_types.h qnx/vssver.scc vxworks/internal_os_types.h vxworks/vssver.scc win32/internal_os_types.h win32/vssver.scc xactor_os_api/delay.h=



IXA SDK 3.51 Files With Updated Licensing Information	
	xactor_os_api/osApi.h xactor_os_api/ostype.h xactor_os_api/sem.h xactor_os_api/thread.h xactor_os_api/vssver.scc
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/me_tools/include/	PacketSim_dll.h PortConfigData.h pciconfx.h RDinterface.h rs_cntl.h rs_connection.h rs_udbg_status.h sem.h simIo.h thread.h uclo.h uof.h uof_dbg.h utils.h utl_bits.h utl_crc.h utl_str.h XT_WB_state_console_api.h XT_WB_xactio_api.h xact_vmod.h xact_vmod_proxy.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/src/include/	bindings.h bindings_general.h definitions.h hardware.h ix_cc.h ix_cc_error.h ix_cc_macros.h ix_cc_microengines_bindings.h ix_cc_prop_clients.h ix_cc_properties.h ix_config.h ix_error.h ix_hardware_configuration.h ix_macros.h ix_netmacros.h ix_os_type.h ix_symbols.h ix_types.h ix_uint128_type.h ixp2400_hardware.h ixp2800_hardware.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/src/include/vxworks/	ixp2400/ixdp2400.h ixp2400/ixdp2400Pci.h ixp2400/ixdp2400misc.h ixp2800/config.h ixp2800/ixdp2000.h ixp2800/ixdp2000Pci.h ixp2800/ixdp2000misc.h ixp2800/ixdp2800.h
src/cp_pdk/ForwardingPlane/FPModule/ixaheaders/src/include/westport_hardware.h	
src/cp_pdk/ForwardingPlane/FPModule/IXASDKStubs/	Makefile src/ixasdk_binding_stubs.c src/ixasdk_fpm_stubs.c src/ixasdk_stub_engine.c
src/cp_pdk/ForwardingPlane/FPModule/Makefile	
src/cp_pdk/ForwardingPlane/FPModule/PacketHandlerManager/	inc/ix_ph.h Makefile src/ix_ph_core_linux_kernel_module.c

IXA SDK 3.51 Files With Updated Licensing Information	
	src/Makefile.linux_kernel src/pkthndlr_linux_kernel_module.c
src/cp_pdk/ForwardingPlane/FPModule/QoSManager/	Makefile src/qos_mgr-stub.c
src/cp_pdk/ForwardingPlane/FPModule/Shim/	inc/shim_list.h Makefile src/shim_linux_kernel_module.c
	src/cp_pdk/ForwardingPlane/Makefile
	src/cp_pdk/ForwardingPlane/TransportPlugin/Makefile
src/cp_pdk/fpmodule_core/	include/cc/ix_cc_fpm_core.h Makefile source/ix_cc_fpm.c source/ix_cc_fpm_msg_helpers.c
src/cp_pdk/fpmodule_proxy/	include/cc/ix_cc_fpm_proxy.h Makefile Makefile.linux_kernel source/ix_cc_fpm_proxy.c
src/cp_pdk/	Makefile npf_api/npf.h npf_api/npf_if.h OptionalComponents.make Rules.make Tools/m2p.pl Tools/project.template
src/framework/	ixa_sdk_dummy.c libs_build/README.txt README.linux_kernel rm/include/rm/internal/internal_version.h
src/library/xscale/	ether_arp/include/cc/ix_cc_arp.h ether_arp/source/linux_kernel_module.c fragmentation/source/linux_kernel_module.c l2_table_mgr/source/linux_kernel_module.c lkup/source/linux_kernel_module.c msg_support/source/linux_kernel_module.c properties/source/linux_kernel_module.c rtmv4/source/linux_kernel_module.c rtmv6/source/linux_kernel_module.c utilities/source/cc_net.c utilities/source/linux_kernel_module.c
src/utilities/run_app/	start6ingress.sh startegress.sh startegress_2800.sh startingress.sh startingress_2800.sh stop6ingress.sh stopegress.sh stopegress_2800.sh stopingress.sh stopingress_2800.sh
src/workspace/	ixa_sdk_dummy.c readme.txt



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