

IPC 3.x

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Introduction

This page contains details about the IPC 3.x product, TI's solution for interprocessor communication between cores on homogenous and heterogeneous devices.

IPC 3.x is an evolution of the IPC product, so it helps to understand the scope of previous generations.

- The IPC product (http://software-dl.ti.com/dsps/dsps_public_sw/sdo_sb/targetcontent/ipc/index.html) defines several interfaces (http://software-dl.ti.com/dsps/dsps_public_sw/sdo_sb/targetcontent/ipc/latest/docs/doxygen/html/index.html) to facilitate multiprocessor communication.
- The IPC 1.x product includes implementations of those interfaces for the SYS/BIOS RTOS. It supports communicating between cores running SYS/BIOS, as well to HLOS processors running SysLink 2.x.
- The SysLink 2.x product (http://software-dl.ti.com/dsps/dsps_public_sw/sdo_sb/targetcontent/syslink/index.html) provides services to control slave processors (e.g. load, start, stop). It also provides an implementation of the IPC interfaces for High Level OSs (HLOS) like Linux and QNX. SysLink 2.x supports communicating with slave processors running SYS/BIOS and IPC 1.x.

IPC 3.x merges the IPC 1.x and SysLink 2.x products, creating a single product that defines multiprocessor communication APIs and provides implementations for several OS's, including SYS/BIOS and HLOS's.

NOTE

The SysLink name is being retired. The SysLink 2.x product will continue to be supported on existing devices, but development has stopped and support for new devices will not be added.

Overview Presentation

File Sharing Site Exception

At TI, we all have responsibility for protecting our information and intellectual property. To help protect TI's network against security threats, access to cloud file sharing sites is restricted.

TI's approved file sharing solution is Box.ti.com. (<https://box.ti.com>) Click here (<https://realtime.tools.itg.ti.com/box/boxRegistration.aspx>) to learn more about using Box at TI.

Changes

The key changes between IPC 1.x/SysLink 2.x and IPC 3.x is the HLOS implementation. Note, there is a [IPC 3.x Migration Guide](#) with more details.

This table summarizes the IPC 1.x/SysLink 2.x supported APIs against those provided in IPC 3.x.

Feature	IPC 1.x/SysLink 2.x	IPC 3.x
Slave loading	ProcMgr	Slaves are loaded on demand, currently without a user API
Low-level primitives	Notify, Heap*MP, Gate*MP, SharedRegion, NameServer	Available for BIOS-to-BIOS communication, only GateMP available on HLOS
Messaging	MessageQ	MessageQ
Higher level data passing	RingIO, FrameQ	None, though IPC provides primitives to enable higher level frameworks

BIOS

For BIOS-to-BIOS communication, the same features available in IPC 1.x are available in IPC 3.x.

Linux

On Linux, IPC 3.x is built upon services available (and evolving!) in the mainline Linux kernel (3.4+). These core services include remoteproc and rpmsg.

Above those Linux services, a few key services from the IPC API (e.g. MessageQ) are provided in user mode.

QNX

On QNX, IPC 3.x provides feature parity to Linux. The QNX OS doesn't inherently provide primitives like Linux's 'remoteproc' and 'rpmsg', so IPC 3.x also includes a loader and rpmsg-compatible communication infrastructure. This rpmsg-compatible MessageQ implementation enables the same BIOS-side image to communicate with either Linux or QNX on the HLOS.

Development

IPC 3.x development is being managed at <https://git.ti.com/ipc>.

There is an [open mailing list \(https://gforge.ti.com/mailman/listinfo/ipc-developers\)](https://gforge.ti.com/mailman/listinfo/ipc-developers) where active discussion about the code base takes place. Patches are also submitted there for review.

IPC Training

IPC training material is updated from time to time. Check back for new updates.

IPC Training v2.21 - IPC 3.x Full Training Material ([PowerPoint](#)) ([PowerPoint Show](#)) ([PDF](#))

- IPC Lab 1 - Hello ([PowerPoint](#)) ([PowerPoint Show](#)) ([PDF](#))
- IPC Lab 2 - MessageQ ([PowerPoint](#)) ([PowerPoint Show](#)) ([PDF](#))
- IPC Lab 3 - Scalability ([PowerPoint](#)) ([PowerPoint Show](#)) ([PDF](#))

See Also

- IPC 3.x Migration Guide
- IPC User's Guide
- Embedded Linux Conference Europe Presentation on rpmsg (<http://free-electrons.com/pub/video/2011/elce/elce-2011-ben-cohen-remote-processor-messaging-450p.webm>)

Keystone=

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1. switchcategory:MultiCore=

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- For questions related to the BIOS MultiCore SDK (MCSDK), please use the BIOS Forum

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This page was last edited on 13 November 2014, at 19:53.

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