IPC Daemon

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IPC Daemon (aka LAD)

This topic is an overview of the daemon used by IPC on Linux. The IPC daemon maintains any processor-wide state that's not specific to any process or thread on the HLOS. For example, it contains the MultiProc configuration (small database of what cores are in the system and their unique IDs), the HLOS's NameServer database, among other misc.

The IPC daemon was forked from the Link Arbiter Daemon, used in DSP Link systems - and while the daemon still contains 'lad' in it's name, LAD isn't really an applicable acronym for anything. (But creative suggestions are welcome!)

Approach

The IPC Daemon is a separate process from other IPC-using applications.

The IPC Daemon must be started **after** the slaves have been loaded, but before any application using IPC is run. Applications connect to the IPC Daemon during the call to Ipc_start() and disconnect during the call to Ipc_stop().

At startup, the daemon creates a FIFO (named pipe) for listening for connection requests from other user-mode clients. When a connection request comes in, the daemon opens a dedicated FIFO for sending responses to the client.

At run-time, LAD processes command in FIFO order, and these commands run to completion before the next command is accepted.

Limitations

Startup Before Any Clients

The IPC daemon needs to be explicitly started before any client applications call Ipc_start().

Maximum Number of Simultaneous Connections

The maximum number of simultaneous client connections to the IPC daemon is currently 32 (the value of LAD_MAXNUMCLIENTS). Meaning, at most 32 client applications can call Ipc_start() at any given time.

Hard-coded MultiProc configuration

For a given device, the MultiProc configuration is predefined in a C struct within the daemon. If you want to subset the MultiProc list, you have to modify this struct and rebuild the daemon. And be sure to be consistent with that MultiProc configuration in each of the slave images as well.

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