

ILOADP

(DECI2 IOP Load Protocol) Specification

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About This Manual

This is the Runtime Library Release 2.4 version of the *ILOADP (DEC12 IOP Load Protocol) Specification* manual.

It describes ILOADP, which is one of the high-level protocols of the DEC12 protocol and is a protocol for controlling the load manager on the IOP.

Changes Since Last Release

None

Related Documentation

Note: the Developer Support Web site posts current developments regarding the Libraries and also provides notice of future documentation releases and upgrades.

Typographic Conventions

Certain Typographic Conventions are used throughout this manual to clarify the meaning of the text:

Convention	Meaning
<code>courier</code>	Indicates literal program code.
<i>italic</i>	Indicates names of arguments and structure members (in structure/function definitions only).
medium bold	Indicates data types and structure/function names (in structure/function definitions only).
blue	Indicates a hyperlink.

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Overview

This document explains ILOADP, which is one of the high-level protocols of the DECI2 protocol.

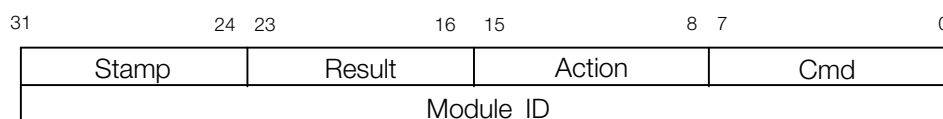
ILOADP is a protocol for controlling the load manager on the IOP. Its protocol number is 0x0150.

Message Format

An ILOADP message is transmitted using the basic DECI2 header.

The ILOADP header follows the DECI2 header, and data is appended after this header, as required.

Figure 1



Cmd Code

The following represent the five types of commands and corresponding replies of an ILOADP message.

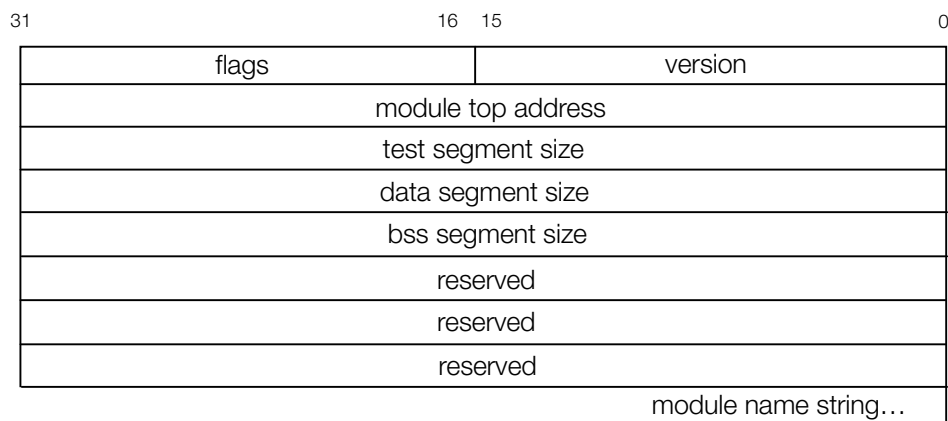
ILOADP_CMD_START	(0),	ILOADP_CMD_STARTR	(1)
ILOADP_CMD_REMOVE	(2),	ILOADP_CMD_REMOVER	(3)
ILOADP_CMD_LIST	(4),	ILOADP_CMD_LISTR	(5)
ILOADP_CMD_INFO	(6),	ILOADP_CMD_INFOR	(7)
ILOADP_CMD_WATCH	(8),	ILOADP_CMD_WATCHR	(9)

The IOP can also notify the HOST with the following command:

ILOADP_CMD_REPORT (16)

Module information having the format shown below may be appended to the return value of several commands.

Figure 2



Messages

ILOADP_CMD_START

ILOADP_CMD_START and ILOADP_CMD_STARTTR are used to load and execute a module.

The ILOADP_CMD_START command sets the ILOADP header as follows and directs the loading and execution of the module.

```

Cmd      = ILOADP_CMD_START
Stamp    = Arbitrary value (the IOP ignores this value)
Action   = One of the following bit flags
           #define ILOADP_ACT_LOAD    0x01  Requests that the module be loaded.
           #define ILOADP_ACT_START  0x02  Requests that the loaded module be started.
           #define ILOADP_ACT_INFO   0x04  Requests that module information be
                                           appended during the ILOADP_CMD_START
                                           reply.
           #define ILOADP_ACT_WATCH  0x08  Requests that the loaded module be
                                           monitored (Watch). (See the
                                           ILOAD_CMD_WATCH command described
                                           later.)

module_id = ID of module to be executed (for ILOADP_ACT_START)
Other fields are 0.

```

When ILOADP_ACT_LOAD is specified for Action, a NULL-terminated string representing the file to be loaded follows the ILOADP header.

When ILOADP_ACT_START is specified for Action, various argument strings follow the ILOADP header and filename. Each argument is a NULL-terminated string.

Even when ILOADP_ACT_START is specified separately, be sure to append a filename string. In this case, the file name may be a dummy name.

When ILOADP_ACT_WATCH is specified for Action, the module is subject to monitoring when the module is loaded or started. Therefore, the ILOADP_STAT_LOADED and ILOADP_STAT_RUNNING statuses will not be reported.

The maximum size of the filename and argument strings is 160 bytes, including the final NULL character of each string.

The following combinations of ILOADP_ACT_LOAD and ILOADP_ACT_START can be specified.

```

ILOADP_ACT_LOAD | ILOADP_ACT_START
ILOADP_ACT_LOAD
ILOADP_ACT_START

```

When loading is completed, the ILOADP_CMD_STARTTR reply is returned. The following information is returned in the ILOADP header of the ILOADP_CMD_STARTTR reply.

Cmd = ILOADP_CMD_STARTR
 Action = Same value as the one specified in the command
 Stamp = Same value as the one specified in the command
 Result = Result code

#define ILOADP_RESULT_OK	0	Normal termination
#define ILOADP_RESULT_LINKERR	1	Link failed
#define ILOADP_RESULT_NOMEM	2	Insufficient memory
#define ILOADP_RESULT_OBJERR	3	Illegal object file format
#define ILOADP_RESULT_NOMOD	4	Specified module not found
#define ILOADP_RESULT_ILLCMD	5	Illegal command specification (such as when action is neither ILOADP_ACT_LOAD nor ILOADP_ACT_START)
#define ILOADP_RESULT_BUSY	6	Next load command arrived during loading
#define ILOADP_RESULT_NOFILE	7	File not found
#define ILOADP_RESULT_FILEERR	8	File read error occurred
#define ILOADP_RESULT_MEMINUSE	9	Specified address already in use

Module_ID = ID number assigned to loaded module

Also, when ILOADP_ACT_INFO is specified for Action, module information is appended following the ILOADP header.

If ILOADP_ACT_START is specified after an ILOADP_CMD_STARTR reply is sent, module execution will begin.

ILOADP_CMD_REMOVE

Currently undefined.

ILOADP_CMD_LIST

Gets a list of IDs of modules that exist in the IOP.

The ILOADP_CMD_LIST command sets the ILOADP header as follows.

Cmd = ILOADP_CMD_LIST
 Stamp = Arbitrary value
 Other fields are 0.

The following information is returned in the ILOADP header of the ILOADP_CMD_LISTR reply.

Cmd = ILOADP_CMD_LISTR
 Stamp = Same value as the one specified in the command
 Result = Result code

#define ILOADP_RESULT_OK	0	Normal termination
--------------------------	---	--------------------

The IDs of all existing modules are returned following the ILOADP header.

ILOADP_CMD_INFO

Gets information related to a specific module.

The ILOADP_CMD_INFO command sets the ILOADP header as follows.

```

Cmd      = ILOADP_CMD_INFO
Stamp    = Arbitrary value
Module_ID = ID of module for which information is to be obtained
Other fields are 0.

```

The following information is returned in the ILOADP header of the ILOADP_CMD_INFOP reply.

```

Cmd      = ILOADP_CMD_INFO
Stamp    = Same value as the one specified in the command
Module_ID = Same value as the one specified in the command
Result   = Result code
          #define ILOADP_RESULT_OK      0 Normal termination
          #define ILOADP_RESULT_NOMOD  4 Specified module not found

```

Module information is appended following the ILOADP header.

ILOADP_CMD_WATCH

Requests monitoring of changes of module status. A change in status is reported in a Module Status Report message, which is described later.

The ILOADP_CMD_WATCH command sets the ILOADP header as follows.

```

Cmd      = ILOADP_CMD_WATCH
Stamp    = Arbitrary value
Module_ID = ID of module for which status change is to be monitored
Action    = Either of the following:
            ILOADP_ACT_WATCH_START  (1) Start monitoring
            ILOADP_ACT_WATCH_END    (0) End monitoring
Other fields are 0.

```

The following information is returned in the ILOADP header of the ILOADP_CMD_WATCHR reply.

```

Cmd      = ILOADP_CMD_WATCHR
Stamp    = Same value as the one specified in the command
Module_ID = Same value as the one specified in the command
Action    = Same value as the one specified in the command
Result   = Result code
          #define ILOADP_RESULT_OK      0 Normal termination
          #define ILOADP_RESULT_NOMOD  4 Specified module not found

```

When start monitoring is specified, a Module Status Report message that reports the current status of the module is returned following the ILOADP_CMD_WATCHR reply.

ILOADP_CMD_REPORT

A status change of a module is reported in the following format.

Cmd	= ILOADP_CMD_REPORT	
Module_ID	= ID of module for which status changed	
Stamp	= Always 0	
Result	= Module status	
	#define ILOADP_STAT_LOADED	1 Not executed. Only for loading; status in which start has not been specified.
	#define ILOADP_STAT_RUNNING	2 Executing
	#define ILOADP_STAT_DONE_REMOVE	3 Execution completed; removed from memory
	#define ILOADP_STAT_DONE_RESIDENT	4 Execution completed; resident in memory

The module entry function return values, which are meaningful only when Result is 3 or 4, are entered contiguously in one word, following the ILOADP header. In all other cases, 0 is returned.

