

Open Firmware

Recommended Practice:

Forth source & FCode image support

Version 1.0

(NOTE: this is an UNAPPROVED DRAFT)

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Membership in the Open Firmware Working Group is open to all interested parties. The working group meets at regular intervals at various locations. For more information send email to:

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Revision History

1. Introduction

Various platform bindings (e.g., PReP) specify particular load image formats that are supported by that platform's Open Firmware implementations. This recommended practice adds support for both Forth source code and FCode images. These formats are to be supported on all platforms.

While different image formats are supported on a platform by platform basis (e.g., ELF), two formats are inherently defined by the base IEEE Std 1275-1994 document. These are Forth source (as defined by Open Firmware) and FCode.

The intent of this recommended practice is that all Open Firmware implementations shall recognize these two formats and deal with them as defined within this document.

2. Forth source

A valid Forth source load image shall be recognized (by **init-program**) when the first two bytes of the load image have the binary values 0x5C, 0x20, which are the (ASCII) character values for '`\`', '' (reverse-slash, space). This character sequence is the standard way of introducing a comment into Forth source.

Such a load image is then assumed to contain lines of Forth source text, each of which is terminated by a line-end (a carriage-return (0x0D) optionally preceded or followed by a line-feed (0x0A)).

init-program upon recognizing a Forth source image, shall set the state of Open Firmware such that a subsequent execution of **go** will cause the loaded Forth source image to be processed as if the lines of text were being entered, line by line, as console input to the Open Firmware User Interface. This interpretation of Forth source text shall be guarded by **catch**; if the evaluation causes an error, Open Firmware shall enter the User Interface.

3. FCode image

A valid FCode load image shall be recognized (by **init-program**) when the first two bytes of the load image have the binary values 0xF1, 0x08 (the first two bytes of a **start1** FCode header) and having a valid checksum. The checksum is computed using the length field of the presumed FCode header and is compared to the checksum field of that header. If the image passes these tests, then it is assumed to be a valid FCode image.

Upon detecting an FCode image, **init-program** shall set the state of Open Firmware such that a subsequent execution of **go** will cause the FCode image to be evaluated (as with **byte-load**). This evaluation shall be guarded by **catch**; if the FCode evaluation causes an error, Open Firmware shall enter the User Interface.