

Embedded USB Host Stack

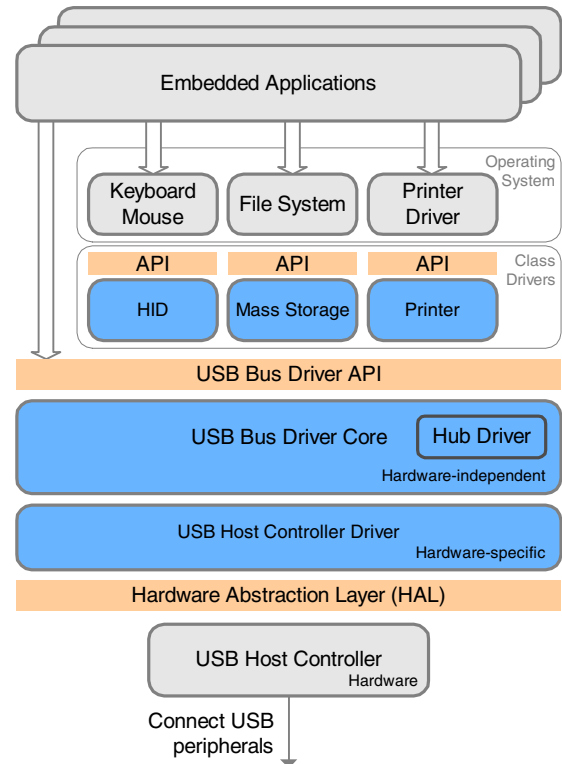
Industrial-grade, standard-compliant USB host software solution

Thesycon's Embedded USB Host stack implements full USB host functionality, including external hub support, and optionally provides device class drivers. It enables developers to easily add USB host functionality to embedded systems.

The software stack complies with the USB v1.1 and USB v2.0 specifications. It supports all transfer modes (control, bulk, interrupt, isochronous) at low, full and high speed. USB pipe management and extended error recovery mechanisms that are required for reliable operation are implemented internally.

The modular design enables applications to access the USB host programming interface directly, or to use APIs exposed by class drivers. At its upper edge a class driver typically attaches to an operating system module such as a file system.

The stack can handle multiple devices and hubs simultaneously and fully supports hot plugging of devices and hubs. The programming interface supports dynamic device enumeration and identification.



Class Drivers

The HID (Human Interface Device) class driver handles input devices such as keyboards and mice.

The Mass Storage class driver controls external flash memory devices (USB memory sticks) and hard disk drives. It needs to be combined with a file system module which typically implements FAT file system support.

The Printer class driver provides a transport layer that allows to send data to a USB printer. In most cases it will be combined with a printer driver which formats the data to be printed.

Further class drivers can be created by Thesycon on request or implemented by a customer.

Platform Integration

The Embedded USB Host Stack is written in ANSI C and can be ported to any hardware platform. For easy integration the software is designed as a library and provided as source code. The library requires a few system services which are encapsulated by an abstraction layer. This layer needs to be implemented in a platform-specific way. This way the stack can be integrated into any embedded OS, or can be used in stand-alone applications. The host stack supports 32-bit and 16-bit CPUs and works in either endian mode.

Licensing

Single product and product family licenses are available. A host stack license includes the full source code and allows royalty-free distribution of binaries compiled from the sources. Distribution of source code is not permitted. For complete license conditions and prices please contact Thesycon.

Supported Controllers

- ❑ Philips/NXP ISP1362 (full speed, external)
- ❑ Philips/NXP ISP1160/1161 (full speed, external)
- ❑ Philips/NXP LPC2388, LPC2468, LPC3180 (full speed, SoC)
- ❑ Open Host Controller – OHCI (full speed, SoC, e.g. Atmel AT91xxxx)

Other host controller drivers can be created on request.