

BASEplatform™

A collection of embedded software modules designed to provide application developers with all the necessary interface modules, BSP, drivers and RTOS integration needed to jump-start their embedded software project. Delivered with the developer's choice of RTOS, IDE and toolchain.

Features

ISO/IEC 9899:1999 compliant C code. BASEplatform is distributed in ISO/IEC 9899:1999 compliant source code.

Choice of blocking, non-blocking and asynchronous API. The versatile API includes blocking and non-blocking IOs as well as an asynchronous callback driven transfers.

Consistent and robust error handling. Functions that can fail always return an error as the C functions return value. Modules and drivers will always try to return to the caller on an error condition to give the application developer maximum flexibility in handling fatal errors.

Low jitter sub-millisecond delays and timers. The BASEplatform timers and delays are implemented with sub-millisecond resolution.

Thread-safe API and optional low overhead API. Thread-safe and SMP compatible primary API as well as the option to interface directly with the drivers to reduce the overhead.

Advantages

Features and performance. Designed from the ground up to be a set of high quality peripheral interface modules, the BASEplatform can offer more features with better performance than most competing options.

Cross-platform and RTOS agnostic. Support for multiple RTOSes or in bare-metal including SMP and AMP configuration along with bare-metal support.

Consistent and robust API. Since all the modules and drivers are designed from scratch, the overall API is consistent from modules to modules. All the API uses the same robust error handling and block calls all support an optional timeout to prevent unexpected deadlocks.

Flexible and modular. Interdependencies are kept to a minimum. Developers are free to select only the requires modules, as well as mix and match between different sources.

Modules and Peripherals

CPU Core & RTOS startup code. The startup code for the chosen CPU, toolchain and RTOS combination is provided with the basic BASEplatform package.

Interrupt management. The BASEplatform includes its own interrupt management API. It can either be used to provide full interrupt management support or integrated with the host RTOS interrupt management API.

System tick, RTC, hardware timers and watchdogs. All the essential time related modules are provided. System tick and RTC integration are also included when running with an RTOS.

Low-speed I/O: UART, I2C, SPI & GPIO. All the basic peripherals required to communicate between MCUs, sensors and other board components. Slave mode is supported as well on relevant peripherals.

High-speed IO: Ethernet, QSPI, MIPI and more. High quality communication and storage drivers are essential to a successful embedded software design. The BASEplatform can include those drivers to supplement RTOS supplied drivers when needed.

SoC level peripherals. Modern systems on chip have many specialized peripherals that may be required to an application. Software interfaces to those peripherals are provided when appropriate. For example system clock and reset control.

Board components. The BASEplatform can include interface modules for external board components as well such as Ethernet PHY, NOR flash, sensors, cameras, and more.

What's Included?

The BASEplatform is delivered with everything needed to start development right away.

Source Code. The BASEplatform is delivered in source form for all the modules and drivers selected.

Getting Started Guide. The getting started guide includes on installing and running the delivered source and projects as well as a summary of the delivered components and documents.

Development Project. Each release package contains a development project for the IDE and toolchain selected by the developer. The development project also includes the debug configuration.

User & Reference Manuals. The user manual as well as the API reference manual for the BASEplatform are included.

Platform Reference Manual. In addition, the platform specific API reference manual for the selected platform and board components is part of the release package.

Hardware Errata Summary Report. To help developers evaluate the errata affecting their platform the BASEplatform is delivered with a summary report of all the errata that may affect the modules, drivers and BSPs included in the package.

Supported Platforms

The BASEplatform is designed to support the widest range of platforms, toolchains and RTOSes without compromising features and performance. Platform support can range from small low power MCU to large heterogeneous multi-core System on Chip.

General Requirements

CPU. 32 or 64-bit architecture is recommended for optimal performance.

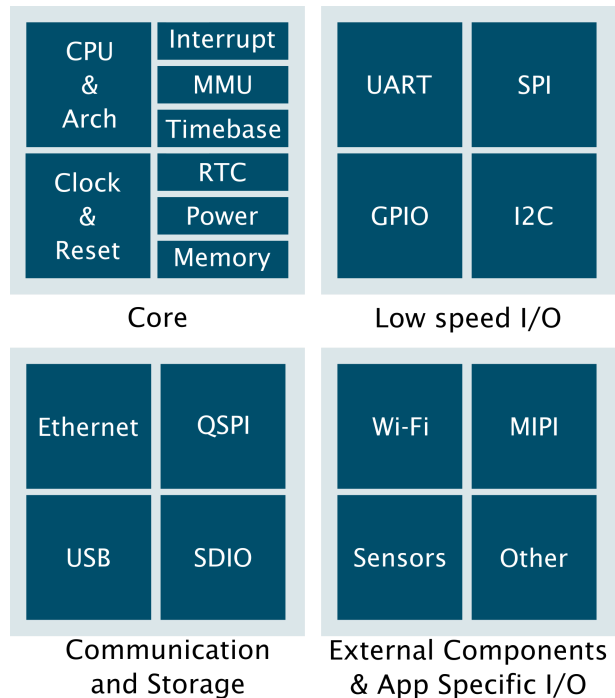
RAM and ROM. Requirements are dependent on the chosen RTOS. For estimation purposes, 3-5 KiB of ROM should be allocated per peripheral module and 64 bytes of RAM per peripheral instance when running in bare-metal.

SMP & AMP RTOSes or Bare-Metal. SMP (Symmetric MultiProcessing) platforms and AMP (Asymmetric MultiProcessing) applications on SMP processors (i.e. two RTOS instances on a dual core Cortex-A9) must be cache coherent.

Toolchain. ISO/IEC 9899:1999 (a.k.a C99) compliant compiler.

Drivers and Modules Selection

The BASEplatform is delivered with the modules tailored to a customer's needs. A minimalist package would usually include the core CPU and RTOS initialization routines, interrupts management, timebase & RTC, clock & reset as well as the low-speed peripheral drivers.



Customization

As an additional service the modules and drivers can be modified to include specialized features or to conform to a customer defined API.

About JBLOpen

Founded in Montreal, Canada in 2016, JBLOpen provides embedded software components and consulting services. JBLOpen is specialized in offering platform support products and services as well as RTOS and third party library integration.