

See at [sourceforge.net](https://sourceforge.net)

Windows binary [here](#).

This file includes highlights of the changes made in the OpenOCD source archive release.

## JTAG Layer:

- \* New driver for J-Link adapters based on libjaylink (including support for FPGA configuration and EMUCOM)
- \* FTDI improvements to work at 30MHz clock
- \* BCM2835 native driver SWD and Raspberry Pi2 support
- \* BCM2835 is set to 4ma drive, slow slew rate
- \* ixo-usb-jtag (emulation of an Altera Bus Blaster I on Cypress FX2 IC) support
- \* JTAG pass-through mode for CMSIS-DAP (including support for FPGA configuration)
- \* OpenJTAG support for Cypress CY7C65215
- \* connect\_assert\_srst support for SWD
- \* Xilinx Virtex-II Series7 bitstream loading support
- \* Use JEP106 data to decode IDs
- \* Deprecated "ft232" driver removed (use "ftdi" instead)
- \* GPL-incompatible FTDI D2XX library support dropped (Presto, OpenJTAG and USB-Blaster I are using libftdi only now)
- \* ZY1000 support dropped (unmaintained since long)
- \* oocd\_trace support dropped

## Boundary Scan:

### Target Layer:

- \* ARMv7-A, Cortex-M, Cortex-A/R important fixes and improvements (allowing e.g. simultaneous debugging of A8 and M3 cores, JTAG WAIT support etc.)
- \* ARM Cortex-A,R allow interrupt disable during single-step (maskisr command)
- \* Semihosting support for ARMv7-A
- \* ARM Cortex-M7 support
- \* Intel Quark mcu D2000 support
- \* Freescale LS102x SAP support
- \* ThreadX RTOS support on ARM926E-JS
- \* Cortex-M RTOS stack alignment fixes
- \* FreeRTOS FPU support
- \* uC/OS-III RTOS support
- \* bridging semihosting to GDB's File-I/O support
- \* -defer-examine option added to target create command
- \* verify\_image\_checksum command added

### Flash Layer:

- \* Atmel SAM4S, SAM4N, SAM4C support
- \* Atmel SAMV, SAMS, SAME (Cortex-M7) support
- \* Atmel AT91SAMd handle reset run/halt in DSU, other fixes
- \* Atmel AT91SAML21, SAML22, SAMC20/SAMC21, SAMD09 support
- \* ST STM32F4x support
- \* ST STM32F74x/76x/77x, STM32L4 support
- \* ST STM32L0 categories 1, 2 and 5 support
- \* Kinetis K02, K21, K22, K24, K26, K63, K64, K66 support
- \* Kinetis KE, KVx, K8x families support
- \* Kinetis FlexNVM handling
- \* Kinetis flash protection, security, mass\_erase improvements
- \* Infineon XMC4xxx family support
- \* Infineon XMC1000 flash driver
- \* Energy Micro EFM32 Happy Gecko support
- \* Energy Micro EFM32 debug interface lock support
- \* Analog Devices ADuCM360 support
- \* Unified Nuvoton NuMicro flash driver
- \* NIIET K1921VK01T (Cortex-M4) support
- \* Nordic Semiconductor nRF51 improvements
- \* Spansion FM4 flash (including MB9BFx64/x65, S6E2DH) driver
- \* Ambiq Micro Apollo flash driver
- \* PIC32MX new device IDs, 17x/27x flash support

- \* read\_bank() and verify\_bank() NOR flash internal API to allow reading (and verifying) non-memory-mapped devices
- \* JTAGSPI driver to access SPI NOR flashes via a trivial FPGA proxy
- \* Milandr read/verify for Info memory support
- \* Various discrete SPI NOR flashes support
- \* CFI 16-bit flash reversed endianness support

#### Board, Target, and Interface Configuration Scripts:

- \* Digilent JTAG-HS2, JTAG-HS3 interfaces configs
- \* FTDI UM232H module as JTAG interface config
- \* 100ask's OpenJTAG interface config
- \* MBFTDI interface config
- \* XDS100v3 interface config
- \* Freescale Vybrid VF6xx target config
- \* EmCraft VF6 SOM and baseboard configs
- \* Freescale SabreSD board config
- \* Freescale VF65GS10 tower board config
- \* Pipistrello Xilinx Spartan6 LX45 FPGA board config
- \* miniSpartan6+ board config
- \* Xilinx Kintex7 Development board config
- \* Parallella-I board config
- \* Digilent Atlys and Analog Discovery board configs
- \* Numato Opsi board config
- \* Xilinx Spartan 6 FPGA "Device DNA" reading support
- \* Altera 10M50 FPGA (MAX10 family) target config
- \* Altera EPM240 CPLD (MAXII family) target config
- \* Marsohod2, Marsohod3 FPGA, Marsohod CPLD boards configs
- \* Novena's integrated FPGA board config
- \* XMOS XS1-XAU8A-10's ARM core config
- \* XMOS xCORE-XA Core Module board config
- \* Exynos5250 target config
- \* Arndale board config
- \* FM4 MB9BFxxx family configs
- \* Spansion SK-FM4-U120-9B560 board config
- \* Diolan LPC4357-DB1 board config
- \* ST STM32F469 discovery board config
- \* ST STM32F7-DISCO, STM327[4|5]6G-EVAL boards configs
- \* ST STM32L4 discovery, NUCLEO L476RG, STM32F429I-DISC1 boards configs
- \* Atheros AR2313, AR2315 targets config
- \* Netgear WP102 board config
- \* La Fonera FON2200 board config
- \* Linksys WAG200G board config
- \* LPC-Link2 board config
- \* NXP LPC4370 target config
- \* Atmel SAMV, SAMS, SAME target configs
- \* Atmel SAM E70 Xplained, SAM V71 Xplained Ultra boards configs
- \* Nordic nRF52 target config
- \* Nordic nRF51-DK, nRF52-DK boards configs
- \* Infineon XMC4700 Relax Kit, XMC4800 Relax EtherCAT Kit, XMC4300 Relax EtherCAT Kit boards configs
- \* Renesas S7G2 target config
- \* Renesas DK-S7G2 board config
- \* Altera EP3C10 FPGA (Cyclone III family) target config
- \* TI MSP432P4xx target config
- \* Cypress PSoC 5LP target config
- \* Analog Devices ADSP-SC58x target config (Cortex-A5 core only)

#### Server Layer:

- \* tcl\_trace command for async target trace output via Tcl RPC

#### Documentation:

#### Build and Release:

- \* Various fixes thanks to [\[url\]](#)
- \* libftdi is now autodetected with pkgconfig
- \* Releases should now support reproducible builds
- \* Conversion to non-recursive make, requires automake >= 1.14
- \* Udev rules modified to add uaccess tag and moved to 60-openocd.rules
- \* Support searching for scripts relative to the openocd binary for all major architectures

This release also contains a number of other important functional and cosmetic bugfixes. For more details about what has changed since the last release, see the [git repository history](#).