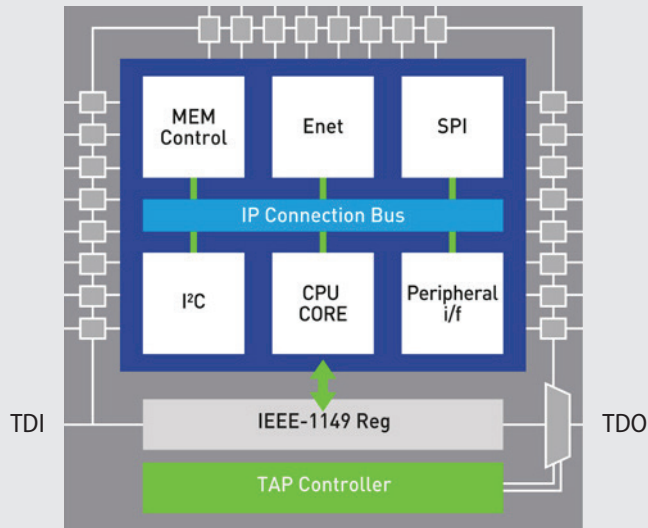


# CoreCommander

Direct access to memory and IO for testing, debugging and programming



- ✓ **Direct access to memory and peripheral devices (I/O)**
- ✓ **Takes control of key processor core**
- ✓ **Create 'at-speed' cluster tests and flash applications**
- ✓ **Most popular processor cores & FPGAs supported**

CoreCommander provides high-level functions to write data to and read data from microprocessor memory and I/O addresses without software programming. CoreCommander functions are applied via the JTAG interface.

## Applications

CoreCommander is used in design debug, manufacturing test and (field) service for many different applications <sup>[1]</sup> such as:

- Diagnosing “dead-kernel” boards; no embedded code is required to perform memory reads and writes.
- Determining the right settings for the peripheral controller (DDR controller, flash memory controller, I/O controller) in combination with your particular memory or peripheral device. Write settings into the controller registers and verify whether proper access to memory is possible with those settings.
- Checking the proper connectivity of a memory or I/O device by writing data to it and reading data back from it.
- Programming board (serial nr) specific data such as calibration values, a mac address or a timestamp in flash memory, or program an entire flash.

[1] If the microprocessor also contains a boundary-scan register then the tests and in-system programming operations can also be done using the boundary-scan register instead of the CoreCommander. Whether in that case the CoreCommander or the boundary-scan register is used depends on preference or performance.

## Background

A microprocessor performs read and write operations on its bus to access memory and I/O locations. The read and write cycles normally result when the microprocessor executes a program that is stored in memory. This requires a good functioning interface between microprocessor and its memory and a program stored in memory.

Execution of a stored program is less logical when one wants to test or debug the connections between a microprocessor and its (external) memory. Another method as provided by CoreCommander is then needed. With CoreCommander the microprocessor is not executing a program. Instead it is externally instructed to write data to and read data from memory and I/O addresses specified with the CoreCommander commands.

Using CoreCommander the coding to test memory connections or to program a flash memory becomes a simple and straightforward sequence of write and read commands.

## Usage

CoreCommander can be used as interactive **hardware debug tool** via its high-level GUI. In this interface register access commands or full memory reads and writes can be selected for inspection and control and executed with a direct view of the results. Sequences of commands can be re-played within the interactive window or exported into a Python editor. The interactive usage is particularly valuable during hardware bring up and debugging in design and (field) service.

For **automated scripts** the functions from CoreCommander can be called directly from programming (scripting) environments such as Python, LabView, LabWindows, Visual basic, C, C++, .NET and TestStand. This is highly valuable to create re-usable tests for specific devices or clusters and for in-system flash programming.

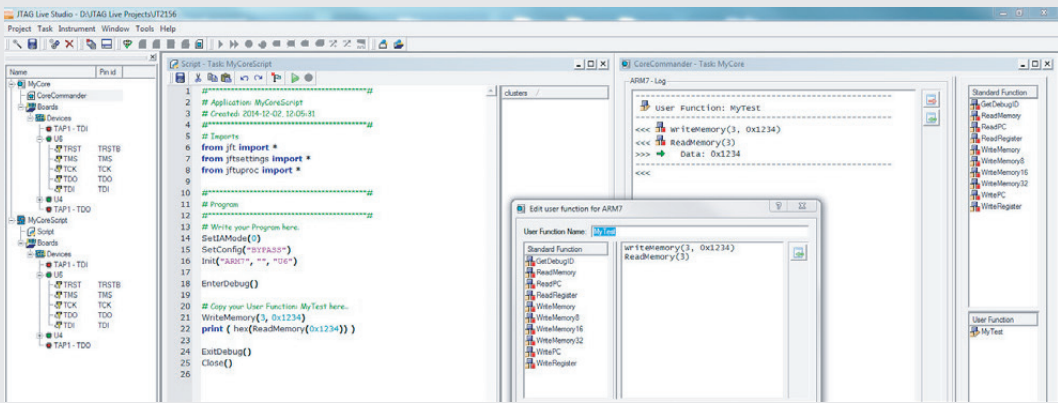
### Available for microprocessors, microcontrollers and DSP's using one or more of the following cores

Analog Devices	Blackfin BF5xx, Blackfin BF60x
Arm	ARM7, ARM9, ARM11, ARM – Cortex (For all A, R and M cores)
Freescale	PowerPC MPC500, MPC5500, and MPC 5600 families
Infineon	C166, Tricore
Marvell	XSCALE – PXA25x / PXA26x, XSCALE – PXA3xx, XSCALE – PXA27x / IXP4xx
Microchip	PIC32
NXP (Freescale)	Coldfire, MPC5xx / MPC8xx, MPC5xxx
Renesas	RH850/D1x / RH850/F1x
STMicroelectronics	SPC5
Texas Instruments	C28x (TMS320 C2000 series)

Ask your JTAG supplier for the support for your specific microprocessor or microcontroller.

*Note: a CoreCommander is core specific, not device specific. Hence any microcontroller that uses one of the above cores is supported through these CoreCommanders.*

## CoreCommander GUI and Python code



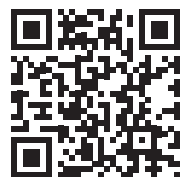
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We are boundary-scan.®