

Example of how CAT and BIOS Real-Time optimization affect jitter and execution time

The following example shows tests performed on an ASEM PC with an Intel Atom® x7-E3950 1.6GHz processor, communicating with an EtherCAT node.

Jitter was measured under three conditions:

- **Without** a BIOS optimized for Real-Time and **without** using the CAT driver
- **With** a Real-Time optimized BIOS but **without** using the CAT driver
- **With** a Real-Time optimized BIOS and **with** the CAT driver enabled

Tests without the CAT driver involve sharing each of the two 1MB L2 cache modules (LLC0 and LLC1) between a pair of cores.

In the test with the CAT driver active:

Core 0 and Core 1 (Windows): share the entire L2 cache of module LLC0

Core 2 (Windows): exclusively uses 1/8 of the L2 cache (1 way) from module LLC1

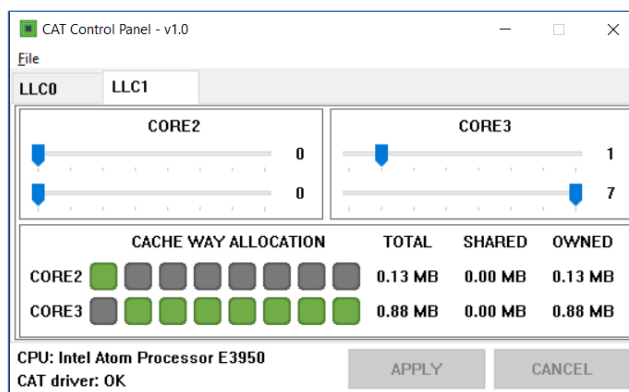
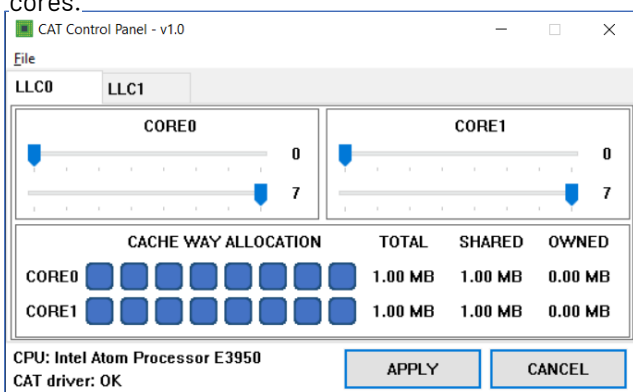
Core 3 (CODESYS®): exclusively uses the remaining 7/8 of LLC1

		Cache Module LLC0							
	Use	Way 0	Way 1	Way 2	Way 3	Way 4	Way 5	Way 6	Way 7
Core 0	Windows								
Core 1	Windows								

		Cache Module LLC1							
	Use	Way 0	Way 1	Way 2	Way 3	Way 4	Way 5	Way 6	Way 7
Core 2	Windows								
Core 3	Codesys								

Windows	
Codesys	

Thus, the core dedicated to CODESYS® has an isolated 896KB L2 cache area, fully separated from the other cores.

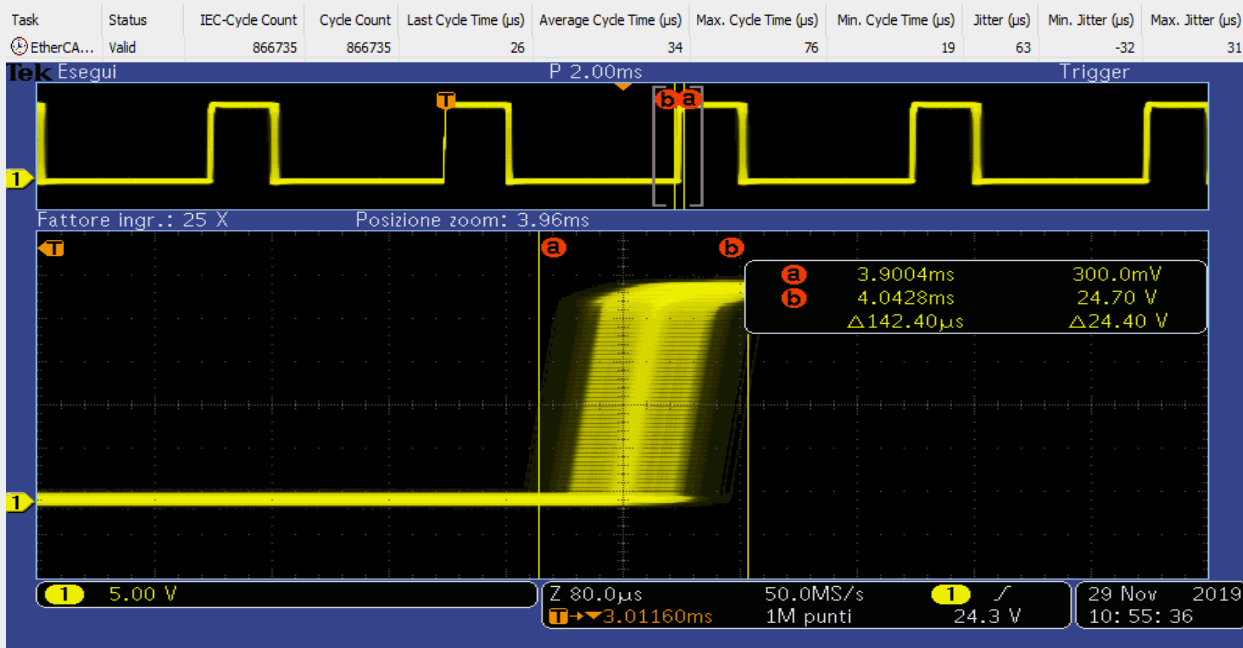


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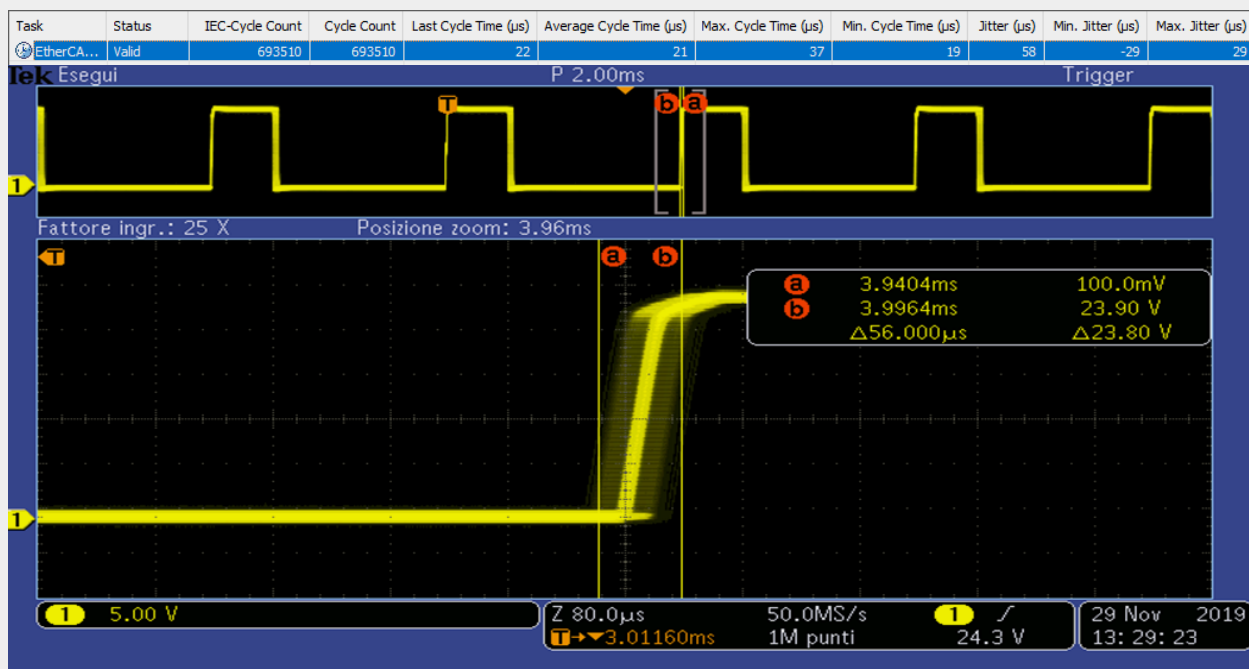
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Soggetta all'attività di direzione e coordinamento della Rockwell Automation International Holdings LLC.



- ✗ BIOS with Real-Time Optimizations
- ✓ Driver CAT



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