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AMD AM3+ FX

BIOS Remarks

Best tradeoff (speed, low power)

HPC Mode Must be ON! If not CPU cannot reach full speed under load (bad multicore performance)
APM Must be ON! If not Turbo Boost won't work (bad singlecore performance)

Best multicore (high power)

APM OFF

—

Overclocking

If it's in TDP limit everything is fine, but when you raise voltage you must turn off APM which guard TDP. My advice → don't raise voltage. If APM is not disabled, CPU is throttling to stand in TDP. If disabled, power consumption reach high levels constantly.

Sample Table

Assume 3.5 GHz as base frequency

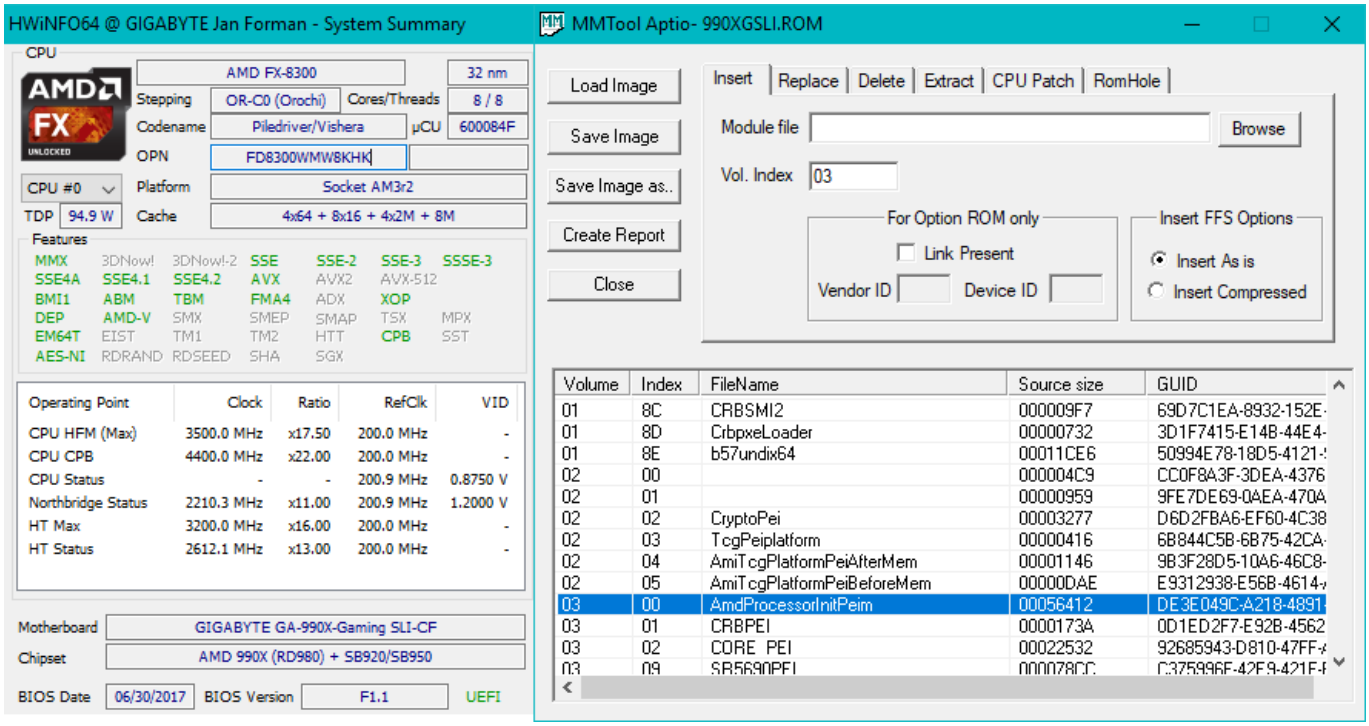
HPC	APM	Remark
ON	ON	System running on 3.5 GHz, sometimes drops to 1.4 GHz (TDP)
OFF	ON	System running on 3.5 GHz, often drops to 2.9 GHz (TDP)
?	OFF	System cannot use Turbo Core, running at 3.5 GHz with very high power usage

C6, Cool n Quiet - always enabled there's no reason to turn it off
HPC Mode lock CPU in three states Turbo-boost, Normal, Low-power.

Microcode Update AM3+

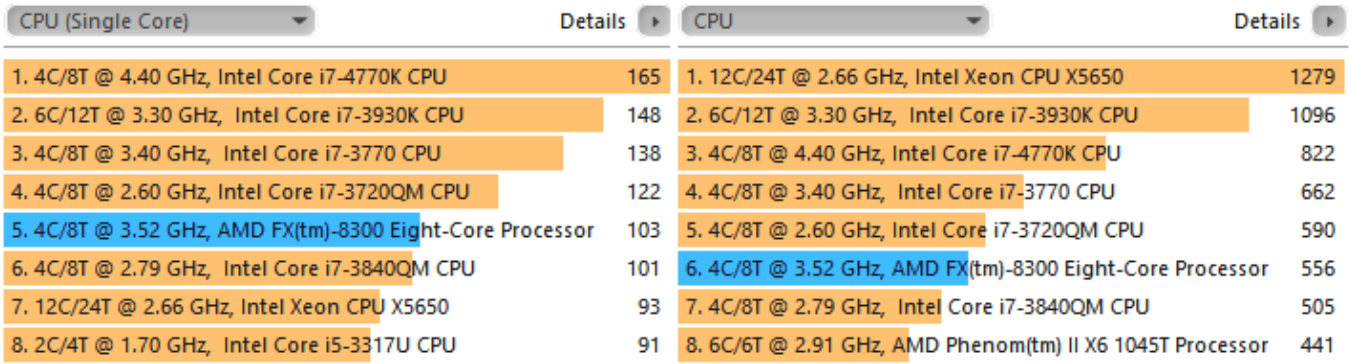
Microcode update is hard and is located in → **AmdProcessorInitPeim** ← UEFI block
Can be edited directly via Hexa editor (pasting new code over approx 3kB size for newer CPUs)
Tools: MMTool, UEFITool, MC Extractor

Sample → Updated AMD microcode to 6000852 (Solved NMI bug and SPECTRE)



Download GIGABYTE GA-990X-Gaming SLI-CF BIOS with new microcode 6000852

Cinebench

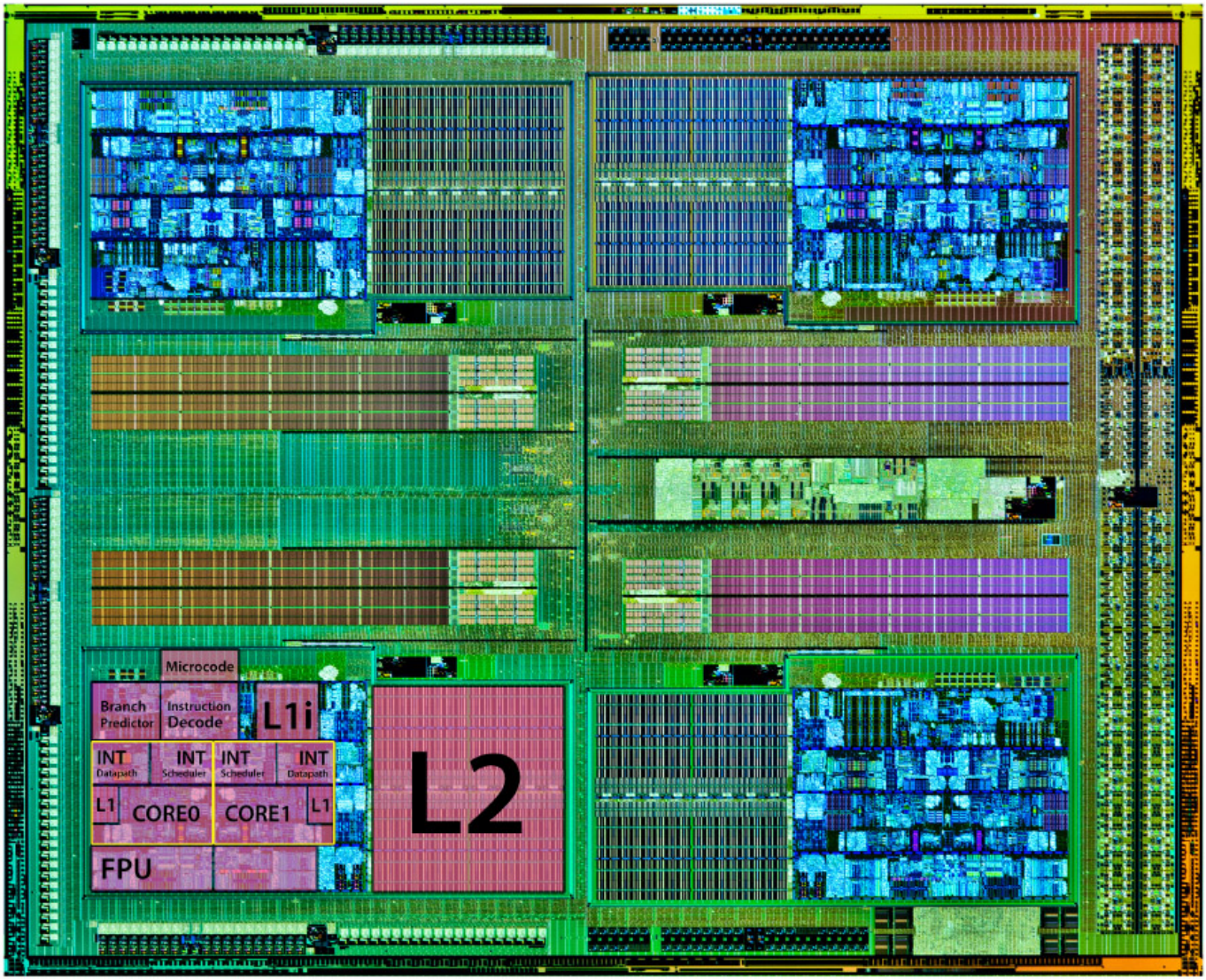


CryptoNight Performance

343.100 H/s

Bulldozer / Piledriver Die

8-core FX-8xxx CPU have 4 modules so in fact this hurts performance.
If you completely load two cores in one module performance is not 200%, but aprox. 160% (Fetch and FPU unit are shared between them).
FPU unit can split into two pieces for most work, but have only one scheduler. L1 instruction cache is shared too
8-core performance gives you not 800% but approx. only 640% (little faster than natural 6 core CPU - Phenom II X6) in full load.



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