

Advantech AE Technical Share Document

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Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	N/A
Abstract	How to solve the problem of BIOS abnormally displaying CPU P-core and E-core		
Keyword	P-core, E-core, core, abnorm, Raptor Lake, ADL-S, CPU		
Related Product	AIMB-308, AIMB-508, AIMB-588, AIMB-708, AIMB-788, ASMB-588, ASMB-788, MIC-770V3, PCE-2033, PCE-2133, PCE-5033, PCE-5133		

■ Problem Description:

When change CPU between i9-12900E and i9-13900E, the “Active Performance-cores” and “Active Efficient-cores” options will be abnormal.

CPU spec:

Processor	i9-12900E	i9-13900E
Total cores	16	24
Performance-cores	8	8
Efficient-cores	8	16

Example (i9-13900E) abnormal case:

The screenshot shows the Aptio Setup - AMI BIOS Advanced menu. Under the CPU Configuration section, the 'Performance-core Information' is expanded. The 'Core(TM) i9-13900E' is highlighted with a red box. The 'Active Performance-cores' option is highlighted with a red box, and a yellow box highlights the 'All' option in the dropdown menu. A blue box with the text 'Only 5 P-core???' is overlaid on the dropdown menu. The 'Active Efficient-cores' option is also highlighted with a red box. The 'Hyper-Threading' option is set to [Enabled]. The 'Intel Trusted Execution Technology' and 'Alias Check Request' options are set to [Disabled]. The 'DPR Memory Size (MB)' is set to 4. The 'Reset AUX Content' option is set to [no].

■ Problem Analysis:

The system BIOS detect the processor capabilities and configures it for best performance or max power saving per user preference. In most of the case, the BIOS is able to detect a new processor being installed via CPUID signature. However, if the new processor had identical CPUID signatures as the one being replaced, the BIOS is unable to tell the processor has been swapped.

■ Solution:

Clear CMOS after HW configuration changes!

If the newly installed processor has different capabilities than the old one, clear CMOS procedure is performed, it restores the BIOS default setting and prevents BIOS accidentally applying invalid settings to new HW obtained from the one previously installed on the system.

Example (i9-13900E), after clear CMOS, P-core displays normally.

