12th Gen Intel® Core™: DDR5 memory

Alder Lake introduces support for the latest DDR5 standard. The flexible System-on-Chip architecture also works with a wide range of memory tailored for different form factors.

**4 memory technologies supported by a unique physical interface layer**

- **DDR5-4800**
- **DDR4-3200**

**Desktop and Mobile**

Standard RAM is used in most desktops and laptops. It typically comes in removable DIMM or SO-DIMM modules that are easy to replace.

**Supports up to DDR5-4800 DDR4-3200**

**A more efficient module**

DDR5 power management moves from the motherboard to the module, where it can be tuned for individual DIMMs instead of accounting for all the different modules on the market. This optimization enables better voltage tolerance and power efficiency.

**Supports up to LP5-5200 LP4x-4266**

**Thin and Light**

LP memory is a low-power variant designed for ultra-slim devices. It's usually soldered to the motherboard to optimize for thinness and footprint.

**Double the channels per DIMM**

DDR5 modules split memory chips between two sub-channels: one for the left side and another for the right. These sub-channels have the same combined capacity as a single DDR4 channel, but they're fully independent, so they can handle separate requests simultaneously.

**An SoC designed to get the most out of memory**

Enhanced overclocking features support even higher performance with the right DIMMs.

**Supports up to LP5-5200 LP4x-4266**

**Dynamic voltage and frequency scaling**

Memory frequency and voltage can scale dynamically based on bandwidth and workload demands.

**New commands reduce power consumption**

- **Data Copy** automatically replicates data transmitting on one pin to all the others, without transmitting to them individually.

**Write X** writes all ones or zeros to a specific address without transmitting any data from the SoC.

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