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Give a brief description of various Intel processors from 8086/8088 up until the present. Provide also the processors' addressing in both real & protected modes.

① **Intel 8086**
~ 16-bit processor with a 20-bit bus.
Real Mode: Utilizes segment:offset.
Protected Mode: Not supported.

② **Intel 8088**
~ 8-bit data bus integration. It is also a 16-bit processor like the 8086.
Real Mode: Utilizes segment:offset addresing.
Protected Mode: Not supported.

③ **Intel 80186**
~ A basically enhanced processor of the 8086.
Real Mode: Segment:Offset addressing scheme.
Protected Mode: Not supported.

④ **Intel 80286**
~ 16-bit processor with 24-bit bus (faster addressing).
Real Mode: Segment:offset.
Protected Mode: Introduced full access to memory for addressing. Also introduced "virtual memory."

⑤ **Intel 80386DX**
~ First 32-bit processor protected mode memory addressing.
Real Mode: Segment:Office
Protected Mode: "Flat Memory Model" addresing where 4gb of memory can be wholly utilized for faster paging.

⑥ **Intel 80486DX**
~ A faster successor to the 80386DX which introduced floating-point unit. (FPU)
Real Mode: Segment:offset
Protected Mode: In addressing memory, it utilizes segmentation while addressing process control blocks (PCBs)

⑦ **Intel 80486SX**
~ Budget version of the 80486DX.
Real Mode: Segment:offset.
Protected Mode: Segmentation while Paging; no FPU.

⑧ **Intel Pentium**
~ First processor to introduce "superscalar" architecture.
Real Mode: segment:offset
Protected Mode: segmentation while paging and utilization of virtual memory.

⑨ **Intel Pentium Pro**
~ Faster version of Intel pentium with 32-bit softwares in mind.
Real Mode: Segment:offset
Protected Mode: Enhanced version of Intel Pentium.

⑩ **Intel Pentium II**
~ Introduced the slot 1 architecture which improved CPU cache management.
Real Mode: Segment:offset.
Protected mode: Same as predecessors, segmentation while paging.

⑪ **Intel Pentium III**
~ Introduced streaming SISD extension which executed multiple datas in a single instruction.
Real Mode: Segment:offset
Protected Mode: Optimized segmentation while addressing pages.

⑫ **Intel Pentium 4**
~ Introduced network architecture Burst to achieve higher clock speeds.
Real Mode: Segment:offset
Protected Mode: Paging-based memory addressing.

(13) Intel Core Solo/Duo
~ First multi-core processor
Real Mode: Segment: offset.
Protected Mode: 64-bit addressing.

(14) Intel Core Duo 2 / Quad 2 / Extreme 2
~ Faster version of the Intel core solo/duo.
Real Mode: Segment: offset.
Protected Mode: Same 64-bit addressing.

(15) Intel Core i3/i5/i7
~ Multi-Core and supports hyper-threading.
Real Mode: Segment: offset.
Protected Mode: 64-bit adressing and direct paging to RAM

(16) Intel Core i9
~ Modern, multi-core processor.
Real Mode: Segment: offset.
Protected Mode: Same to its predecessor.

(17) Intel Alder Lake
~ Hybrid architecture containing performance & efficiency cores.
Real Mode: Segment: offset.
Protected Mode: 64-bit virtual memory addressing.

(18) Intel Raptor Lake
~ Improved thread efficiency.
Real Mode: Segment: offset.
Protected Mode: Same as predecessors.

(19) Intel Meteor Lake
~ AI driven processing.
Real Mode: Segment: offset.
Protected Mode: Same as predecessors.