Feature / Area	Windows 10	Windows 11
NUMA Awareness	Basic: treats all memory as nearly equal	Improved NUMA locality + latency domain scheduling
Asymmetric Core Scheduling	No support	Thread Director (Intel) / CPPC hints (AMD) support
Memory QoS / Priority	Process-wide priority only	Per-thread/process memory priority & policy control
Persistent Memory (PMEM)	Manual setup via drivers	Native support (esp. in Pro for Workstations)
Hardware Stack Protection (CET)	No CET support	CET with shadow stacks, indirect branch tracking

VBS / Memory Isolation	Minimal (Credential Guard)	Full Virtualization-Based Security, LSASS protection, Secure Kernel
DirectStorage & MMIO Optimization	Not supported	Native support for DirectStorage (NVMe→VRAM)
Page Combining / Deduplication	Basic, coarse deduplication	Improved combining, transparent large pages
AI Workload Memory Staging	N/A	NPU-aware memory pools via WinML, DirectML
Memory Telemetry	Basic performance counters	Real-time feedback for scheduler decisions

Linux (5.15+ / 6.x)	Why It Matters
Fully NUMA-aware, with user-tunable policies (e.g. numactl, cgroups)	Multisocket/multichip systems benefit from locality awareness
Supported via schedutil, EAS, CPPC, and core ranking	Balances efficiency/performance cores dynamically
Supported via cgroups, memcg, and OOM scoring	Enables fine-grained resource control in mixed workloads
Full support with DAX, ndctl, pmem.io	Useful for high-speed in-memory DBs or fault-tolerant apps
CET support depends on CPU & kernel version (enabled in 6.1+)	Mitigates ROP and memory corruption attacks

KVM, seccomp, AppArmor, SELinux, memory namespaces	Isolates critical memory; protects against lateral movement
ZC streaming via io_uring, VFIO, DMA-BUF, vDPA	Lower latency for gaming, AI, and PCIe devices
KSM (Kernel Same-page Merging), zswap, zram, THP	Reduces memory usage in VM-heavy or containerized environments
ROCm, ONNX Runtime, TorchDynamo, OpenCL, DRM GPU offload	Stages memory across CPU/GPU/NPU with minimal copying
Exposed via procfs, sysfs, perf, ebpf, and pressure stall info	Enables smarter decisions by user-space & kernel on memory pressure