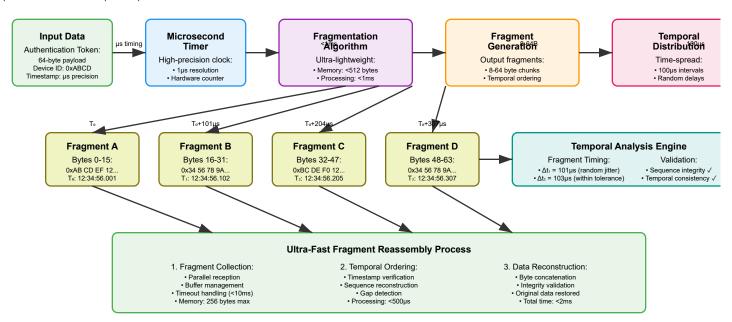
## FIGURE 2: Ultra-Lightweight Temporal Fragmentation Process

pry footprint <512B • Power consumption <10μJ • Quantum-resistant



## **Resource Optimization and Power Management Memory Optimization Processing Speed Power Management Security Properties** Scalability Energy Profile: Static Allocation: Algorithm Efficiency: Quantum Resistance: Network Scale: Fragment buffer: 256B Timing table: 128B Work buffer: 64B Total RAM: 448B Bitwise operations only No floating point Lookup tables (LUT) SIMD instructions • Fragment: 8µJ avg • Reassembly: 12µJ • Sleep mode: <1µA • Wake time: <50µs Temporal entropy Random jitter Fragment scrambling • 10K+ devices Mesh topology Self-organizing Replay protection Side-channel immune Collision avoidance · No dynamic allocation Pipeline optimization Battery life: 5+ years QoS management