HARMAN – STORAGE MEMORY SOLUTIONS

IVAN IVANOVD JULY 2018
INDUSTRIES DRIVING MEMORY SYSTEM ARCHITECTURE INNOVATIONS

PC type of architecture

MOBILE type of architecture

AUTOMOTIVE type of architecture

2000 2020 2024+

TIME

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For 2023+ Cockpit architectures HARMAN will need:

- High bandwidth and fast startup for fast boot support
- Guaranteed minimum sustained write performance
- Support of extended temperature (105C/125C)
- Stable performance over time, different usage profiles and operating temperature
- SRIOV support!
- Very high endurance and extended TBW budget
- Extended data retention at high temperatures
- Very high density
- Very low latency
- Deterministic media
- 15+ year device life

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EMERGENT TECHNOLOGIES

SRIOV!

INDUSTRY CAPABILITIES

APPLICATION PERFORMANCE REQUIREMENTS

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HARMAN HIGH-LEVEL REQUIREMENTS

- Extended data retention → 15 years+ at temperature >> 95°C Tc
- Very high Read/Write speed (DRAM like), symmetric access
- Byte-accessible
- NO wearing mechanism
- BER (Bit Error Rate) → Potential Replacement for DRAM (UBER 10e15)
- On die ECC in flight (no added latency in read mode)
- Zero power in standby mode
- NO refresh needed
- Instant-on support
- Non-volatile
- MLC/TLC/QLC... - capable technology
- 3D-capable
- Scalable (for reference → below 5 nm)
- Samples 8/16 Gbits per die and more in 2023+
- Cost infrastructure → better (less) than DRAM
THANK YOU