



avalanche technology

Spin Programmable Storage Solutions

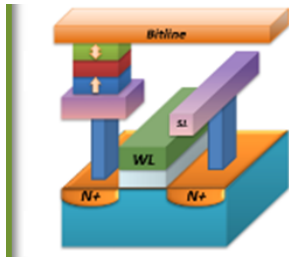
Avalanche Technology

Leader in pMTJ Solutions

Hamid Haidari
Vice President, WW Sales

Vision

Disruptive pMTJ Technology



Fabless Universal
Non-Volatile Memory
(NVM) Technology

Addressing Large Markets



Mobile,
Telecommunications,
Compute and
Enterprise Storage

Led by an Experienced Team



Industry Veterans
Delivering
Innovative Storage
Solutions
450+ patents awarded

Overview

Founded	2006
Breakthrough	Highly scalable, low cost, high performance next-generation proprietary memory technology pMTJ Memory Cell SPMEM™
Proven	SPI NOR and SPI NVSRAM devices @55nm and @40nm 12" wafer Technology node
Powerful IP	Over 220+ US and Foreign Granted Patents
Stage	First company to ship proprietary pMTJ customer samples. DDR in design
Targeting	Embedded and stand alone memory market with more than \$50B TAM
Partners	Key manufacturing and licensing agreement
Go-to-Market	Discrete and Embedded

Large Market Opportunities

MRAM Target Markets



Automotive

Market Size in 2022:

\$48B¹



MCU

Market Size in 2020:

\$27B²



IoT

Market Size in 2020:

\$3.5T³



Storage

Market Size in 2020:

\$25B¹



Compute

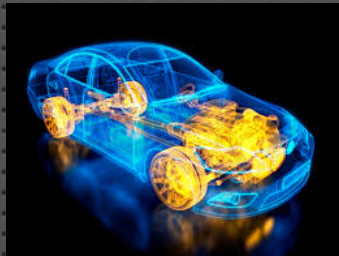
Market Size in 2020:

\$214B⁴

Sources:

¹Markets and Markets, ²Grand View Research, ³AT Kearney, ⁴Radiant Insights

Immediate Target Markets



Automotive

Self Driving
Engine Control
Security system
Navigation
Infotainment



MCU

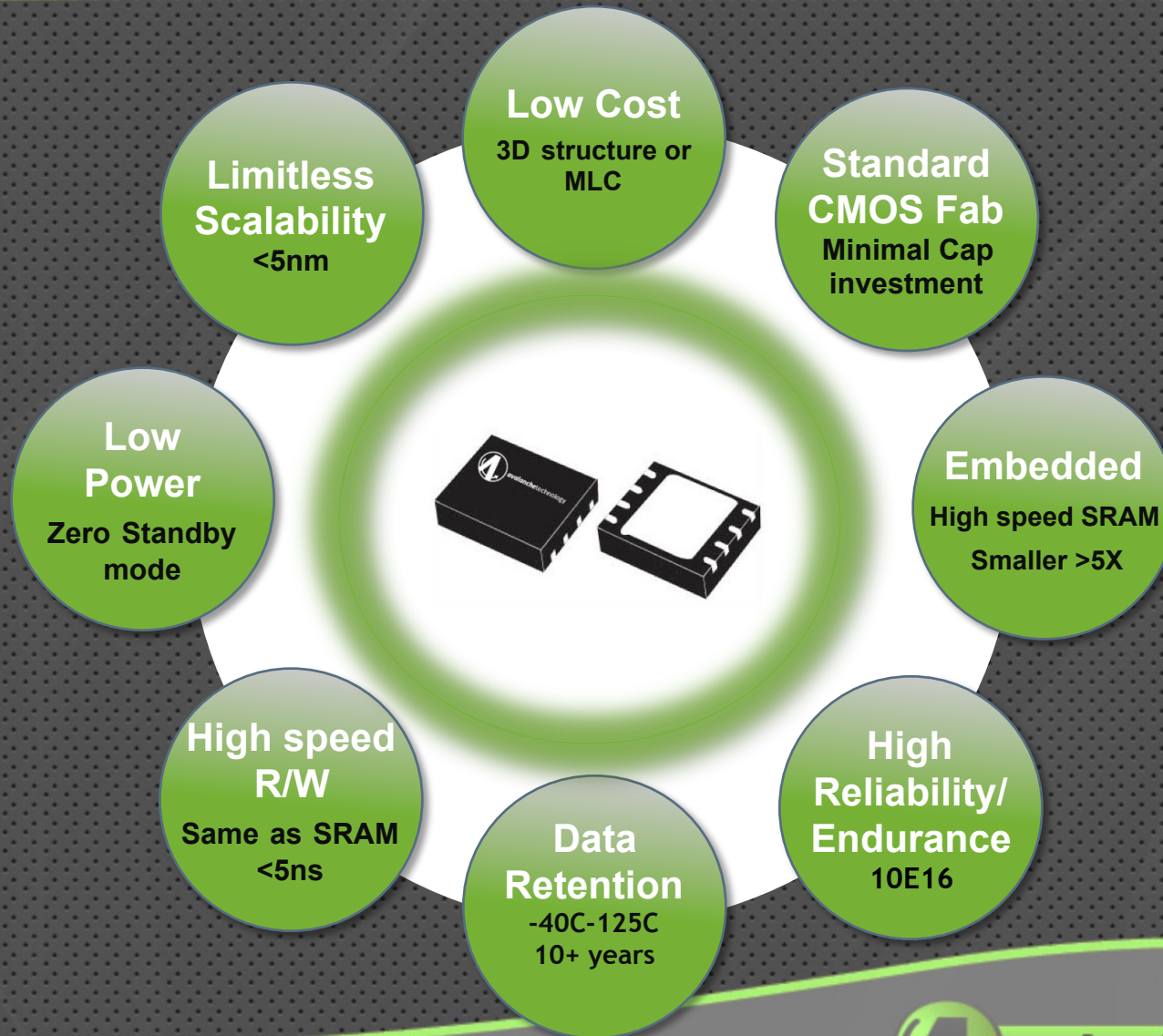
Smart Meter
POS
Touch sensors
Set-top boxes
Industrial



IoT

Wearable's
Smart TV's
Intelligent
sensors
Home security

AvMRAM™ pMTJ Key Technology Advantages



Building Momentum & Creating Value

Technology backed by 220+ awarded patents

Today

NvSRAM – FRAM Automotive - Embedded

- ✓ *Low Power*
- ✓ *Automotive Temp*
- ✓ *Cost effective*
- ✓ *Low entry barrier*
- ✓ *Available Now*

In the works

Persistent DRAM NvDIMM

- ✓ *DDR Interface*
- ✓ *Higher Density*
- ✓ *Lower System Cost*
- ✓ *Tier 1 Fab for Embedded/Discrete*

Tomorrow

High Density Storage Class Memory

- ✓ *Proprietary Selector Device*
- ✓ *Excellent cost*
- ✓ *Lower Technology Nodes*

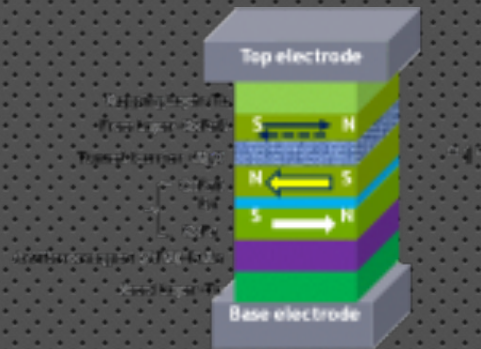
Multi Gbit

Summary

- ◆ Large addressable market
- ◆ pMTJ – STT-MRAM is the next Mainstream Storage Class Memory
- ◆ Customers are testing and are deploying in their products
- ◆ It is a scalable technology <1xnm = Lower cost
- ◆ Carries all of the required features for large market segments

See how MRAM can benefit you!

Thank You !



www.Avalanche-Technology.com