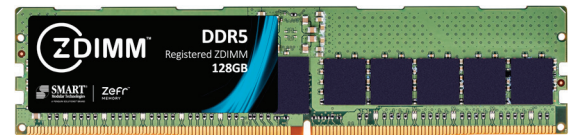# SMART ZDIMMs for AI and ML

Artificial Intelligence (AI) and Machine Learning (ML) computing applications ingest large amounts of data. Inferencing servers accept input data and execute AI and ML models developed in training servers. Training servers use advanced software to develop models for functions such as object and facial recognition, genomic and medical research. The output models from training servers are returned to the inferencing servers where they are put to work. Inferencing servers require ~20% more DRAM than standard servers whereas training servers require ~2.5 times more DRAM than standard servers.

Using highly reliable DRAM memory for AI and ML applications is extremely critical. If there are too many memory ECC errors or other catastrophic DRAM bit failure issues this will cause a system shutdown and the entire training job needs to be restarted. This problem can be extremely costly and take significant time to recover. One solution used widely today to mitigate against memory failures is having redundant computing systems that mirror the AI and ML functions. As one can imagine that this is extremely costly.

A new cost-optimized and highly effective solution is to use SMART's high reliability ZDIMMs. ZDIMMs (Zefr Memory Modules) are rigorously tested to eliminate over 90% of memory reliability failures, ensuring maximum application uptime and optimizing memory subsystem reliability.

ZDIMM Features

- Comprehensive and rigorous 5-part testing process; temperature, speed, load, system and time

- Zefr testing emulates the most strenuous use cases producing modules with the highest levels of reliability

- Proven long-term reliability with 200 or less DPPM vs. the industry standard of 3,000-5,000 DPPM (Defective Parts Per Million)

- Available in DDR4 and DDR5 from 32GB to 128GB for mainstream DRAM RDIMM population densities

AI and ML Application Examples

- Natural language processing (LLMs)

- Image recognition, 3D rendering, security camera data processing

- DNA Sequencing, high resolution medical image processing

- Algorithmic trading, real time high-speed analytics

Product Summary Overview

Artificial Intelligenc and Machine Learning			
Technology	Module Type	Speed	Densities
DDR5	ZDIMM	DDR5-5600	32GB - 128GB
DDR4	ZDIMM	DDR4-3200	16GB - 64GB

Individual part nos. can be found on www.smartm.com

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For more information, please visit: **www.smartm.com**

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