

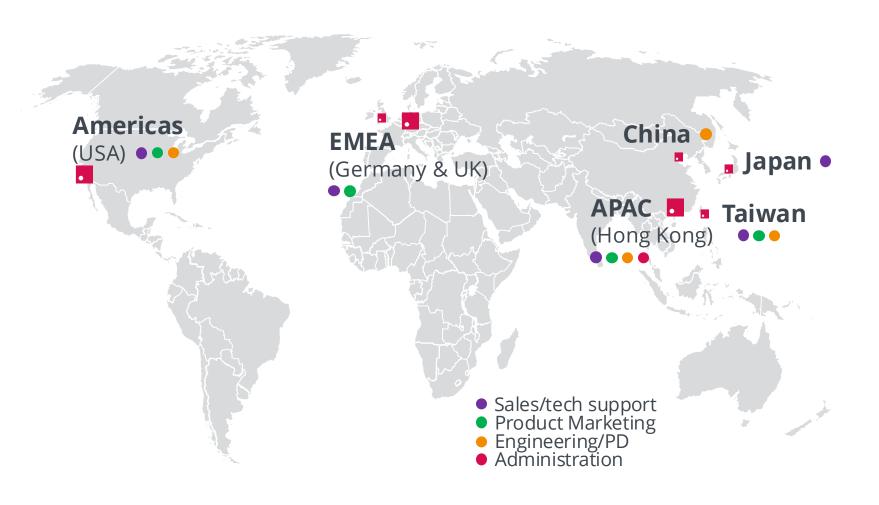
# Intelligent Memory Company Presentation

# **Intelligent Memory** | Introduction

# **Unlimited Ingenuity**

- 1991

   Founded as
   Pacific Force Technology Limited
- 2014
   Changed to
   I'M Intelligent Memory Limited
- Since 2021
   Operating as
   Intelligent Memory Limited





# **Business Focus** | Introduction

### **Industrial & Embedded Markets**

and their unique product and service requirements



















Industrial

- Commoditized
- (Unit) price driven
- Short product cycles

- From legacy to latest technologies
- Low volume/high mix
- Controlled BOM
- Longevity-focused life cycle management
- Commercial, technical and logistical support in all regions
- In-house product designs, manufacturing, and testing capabilities
- Products designed for longevity and reliability



# **Key Differentiators** | Introduction

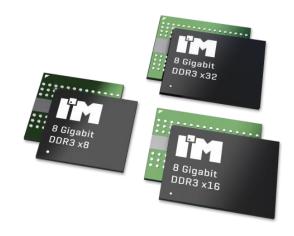
# Unique & extensive industrial memory offering

IM is the only supplier offering their own DRAM components, DRAM modules and managed NAND products.

This allows **IM** to address close to all memory requirements of our customers.

#### **DRAM Components**

- Differentiated offering
- Legacy to latest technologies
- Unique capacities



#### **DRAM Modules**

- IMOriginal
- IMSelect
- Variety of form factors



#### **NAND Products**

- All common interfaces and form factors
- Customizable to use cases



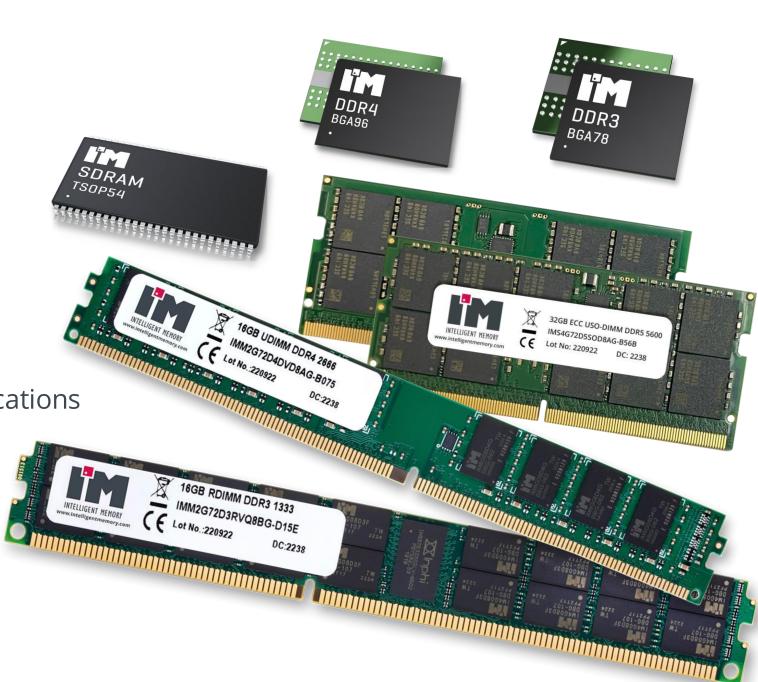


# **IM DRAM Products | Overview**

### **Our Benefits**

- More than 30 years of experience serving industrial markets with DRAM solutions
- Full in-house product knowledge:
   From design to manufacturing to testing
- Full-range of JEDEC compliant products
  - SDRAM, DDR, DDR2, DDR3, DDR4
  - LPSDR, LPDDR, LPDDR2, LPDDR3, LPDDR4(x)
- Specialty built-in **ECC DRAM** products for most demanding applications (e. g. Space, Automotive)
- Longevity and supply stability





# IM DRAM Products | Line-up Overview

# Components

- JEDEC Compliant
- Legacy to latest technologies
- Longevity focus

	Standard	Integrated ECC
LPDDR4x	4Gb - 64Gb	
LPDDR4	4Gb - 64Gb	4Gb, 8Gb
DDR4	4Gb, 8Gb, 16Gb, 32Gb	
LPDDR3	8Gb, 16Gb	
DDR3/L	1Gb - 16Gb	1Gb
LPDDR2	1Gb x16, 2Gb - 4Gb (x32)	
DDR2	512Mb - 2Gb	1Gb
DDR	256Mb - 1Gb	1Gb
SDRAM	64Mb - 512Mb	256Mb, 512Mb

### Modules

- In House Manufacturing
- Based on IM DRAM components as well as from other suppliers
- All standard form factors, plus special/custom designs
- Available in Commercial and Industrial Temperature Grades

	Capacity	Height
DDR5	Up to 64GB	STD, VLP
DDR4	Up to 64GB	STD, VLP, ULP
DDR3	Up to 32GB	STD, VLP, ULP
DDR2	Up to 8GB	STD, VLP
DDR	Up to 2GB	STD
SDRAM	Up to 1GB	STD



# **IM NAND Flash Products | Overview**

### **IM's NAND Product Lineup**

- IM's NAND line-up includes 3 family categories:
  - Emerald, Ruby and Silver, classified by their endurance
- Longevity options for extended, long-term availability without BOM changes
- Comes with IM's full range of technical support and tools

Silver
MLC/TLC Grade Highest Capacities

Ruby
Pseudo-SLC Grade Capacity & Endurance

Emerald
SLC Grade Highest Endurance

Endurance

#### Silver Ruby Emerald

#### For Applications

- That require mid- to high-capacity ranges
- With a high write workload or very long required system lifetime

#### For Applications

- That require highest possible capacities
- · With normal write workload, e.g.
  - No 24/7 write access
  - More sequential than random workload

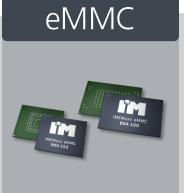
#### Addressing All Requirements Towards an SLC-Based Product

- Highest endurance
  - Equivalent to min. 60.000 P/E cycles;
  - · Highest endurance under random workload
- Performance in combination with latest firmware architecture
  - Superior sequential and random performance
- Reliability
  - Highest quality HW, combined with sophisticated firmware mechanisms ensure high level of reliability and data integrity



# **IM NAND Flash Products | Overview**

# IM's NAND Product Lineup – Interface & Form Factor



100b & 153b versions

Extended, Industrial & Automotive temperature

### **Product Highlight**Low density line

• 4GB, 8GB, 16GB



Range of form factors & capacities

#### **Product Highlight**

- BGA, embedded, removable
- 8GB to 16TB

Commercial & Industrial temperature





Extended & Industrial temperature

# **Product Highlight**Longevity line

- 10+ years fixed BOM
- 512MB, 1GB, 2GB



Gen3, Gen4, Gen5 (coming up)

Low power & high performance versions

Extended & Industrial temperature

#### **Product Highlight**

High densities: up to 16TB





# **IM NAND Products** | Key Features - PLACEHOLDER

# Reliability, Performance & Endurance Enhancements

embedded into our NAND products

#### **Lifetime Monitoring**

- Available for Windows, Linux and as library
- Wide range of parameters that can be monitored





### UNLIMITED INGENUITY

### **Intelligent Memory**

info@intelligentmemory.com www.intelligentmemory.com

#### **Intelligent Memory Ltd.**

#### **Headquarters**

Unit 1 - 6 A, 11/F, Mita Centre, 552-566 Castle Peak Road, Kwai Chung, Hong Kong Phone: +852 2422 0422

#### **Taiwan Office**

Room H, 12/F, No.118, Ciyun Road East District, Hsinchu City, Taiwan, R.O.C. Phone: +886 3577 9787

#### **Japan Office**

#418, Sotokanda Stork bldg. 4F, 6-15-14, Sotokanda, Chiyoda-ku, Tokyo, 101 0021, Japan Phone: +81 3 5807 6787

#### **Intelligent Memory EMEA GmbH**

#### **EMEA Headquarters**

Mergenthaler Allee 15-21 65760 Eschborn, Germany Phone: +49 6196 93496 11

#### **Intelligent Memory AMERICA Inc.**

#### **Americas Headquarters**

1 Venture, Suite # 250 Irvine, CA 92618, USA Phone: +1-949-538-5800

