

SQRAM

Selection Guide

SQRAM

2023Q1



SGRAM product portfolio

High Plus Series



Early access
High Speed
LRDIMM
RDIMM

high capacity up to
128GB

SQR-LR4N-128G
SQR-RD5N
SQR-RD4N-128G

Robust Series



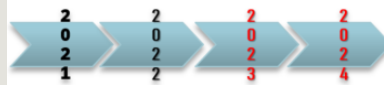
Extreme High Temp.
-40~85°C/
-40~125°C
HeatSink attached



In-Vehicle Design

SQR-SD5I
SQR-SD4I
SQR-SD3I
SQR-HS4I
SQR-YD4I
SQR-UD4I

Longevity Series



Long term partner
contract
2023~2025



Extended Longevity

SQR-SD5N
SQR-SD4N
SQR-SD3N
SQR-SD2N
SQR-SD1N

Box PC series



Cost effective
temperature range
-20~85°C

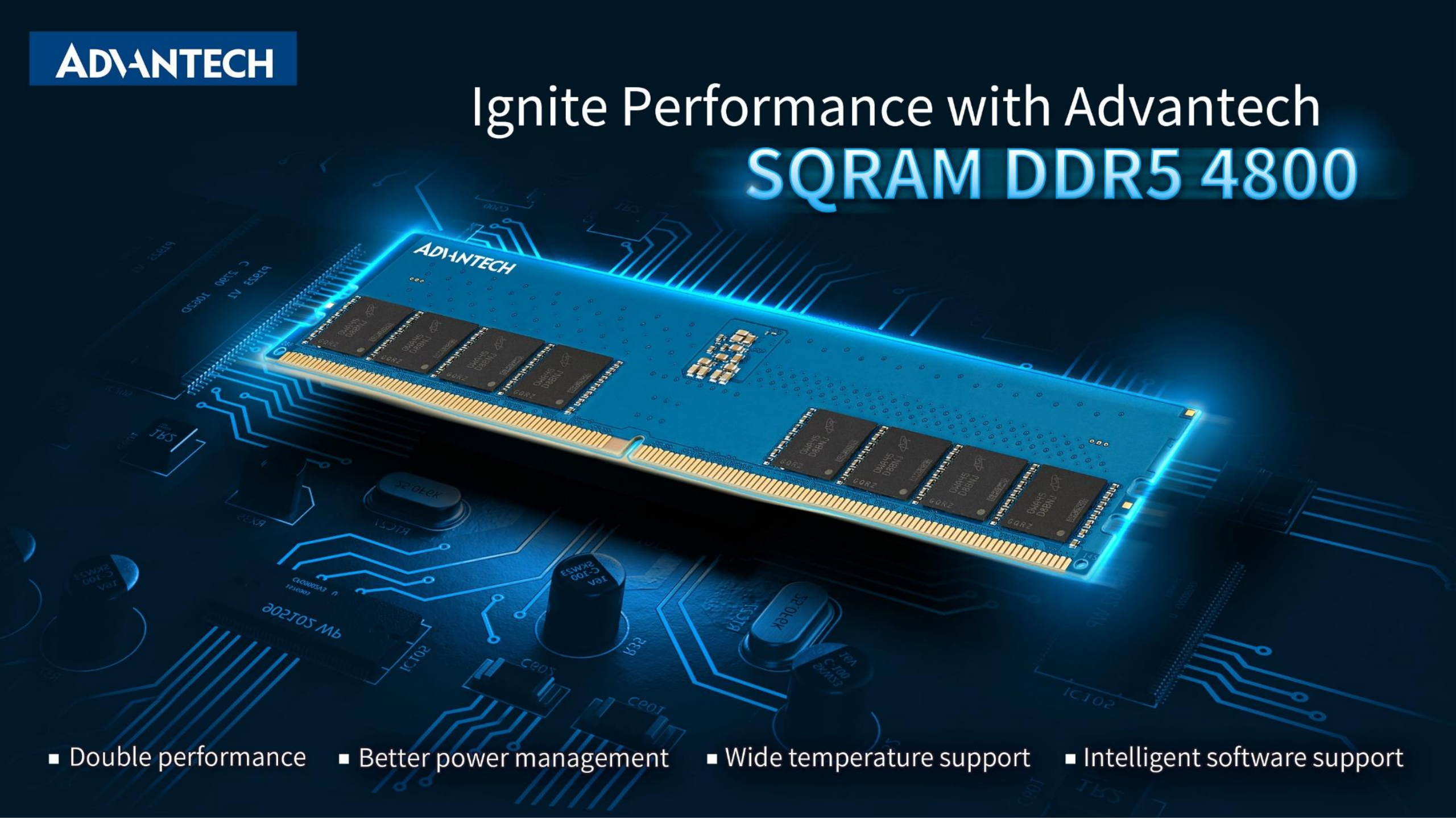


Semi-Industrial
Temp

SQR-SD5M
SQR-SD4M
SQR-SD3M

ADVANTECH

Ignite Performance with Advantech SQRAM DDR5 4800

- 
- Double performance
 - Better power management
 - Wide temperature support
 - Intelligent software support

SQR DDR5 OFFERING

- ✓ Server Grade
 - ✓ **Edge server**
 - ✓ **Semi-conductor** test equipment
- ✓ High-image processing **Medical**



SERVER-GRADE /
EXTREME

Edge Server / Semiconductor Tester

SQR-RD5N

RDIMM DDR5 4800
16/32/64GB
0-95°C

SQR-UD5N (ECC)

ECC UDIMM DDR5
4800
8/16/32GB
0-95°C



COMPACT / ECONOMIC

Medical /Automation / Robotics

SQR-SD5N

SODIMM DDR5 4800
8/16/32GB
0-95°C

SQR-UD5N

UDIMM DDR5 4800
8/16/32GB
0-95°C



RUGGEDIZED

Transportation / Outdoor Kiosk /Defense

SQR-SD5I

SODIMM
DDR5 4800
8/16/32GB
-40-95°C

SQR-YD5

RUGGED DIMM
DDR5 4800
16/32GB
0-95°C / -40-95°C

SQR-SD5 (ECC)

ECC SODIMM
DDR5 4800
8/16/32GB
0-95° / -40-95°C



SGRAM Rugged Features



Robust Design

Rugged DIMM with
Mounting hole

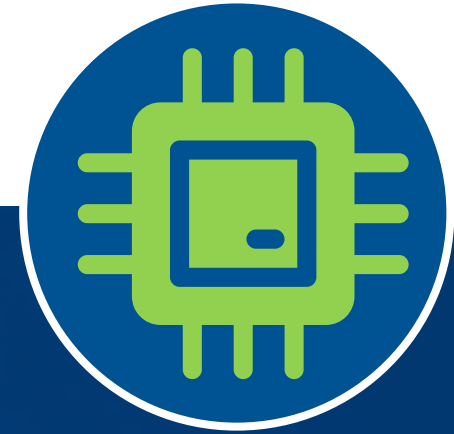
MIL-810G verified



Wide Temp

-40~125°C operating in
extreme environment

Thermal solution by Heatsink



Coating/underfill

Water or corrosion to
resistance to improve
product life

SQR-SD4E

SODIMM DDR4 3200



**ULTRA
WIDE TEMPERATURE**

-40°C~125°C

- Capacity: 8GB/16GB/32GB
- Operation High-Temperature up to 125°C
- Original Micron Automotive Grade IC
- Upper Industrial 48HR Burn-in program
- Temperature monitoring tool
- Overheat alert support

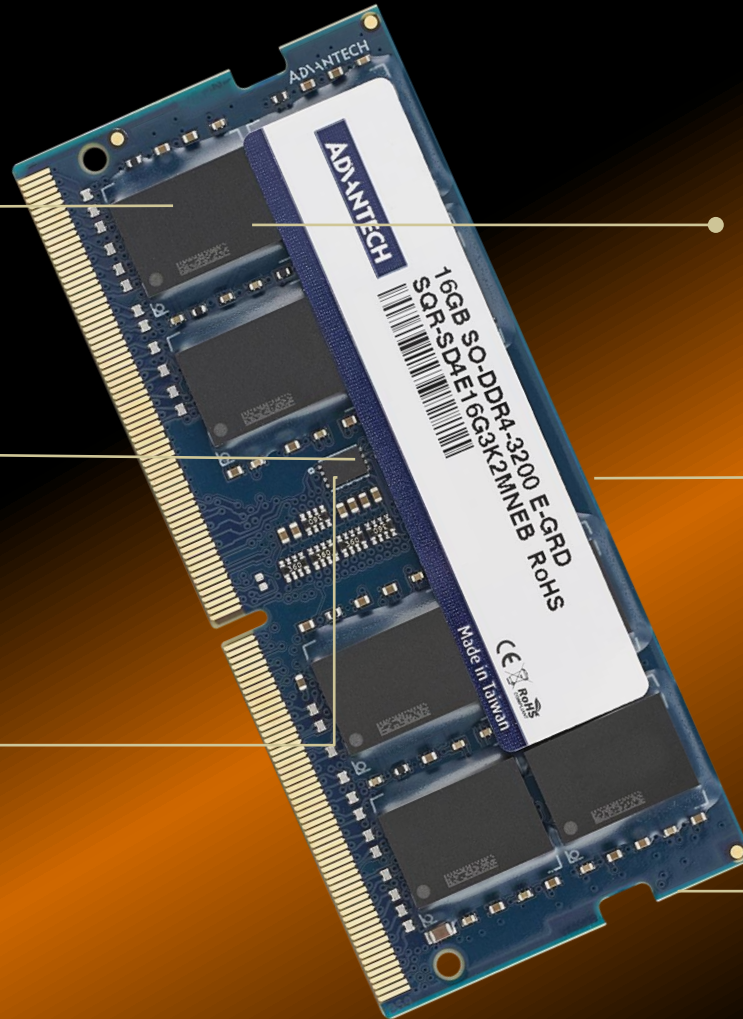
ADVANTECH

Breakthrough High Temperature

Original Micron automotive grade IC

Thermal Sensor attached

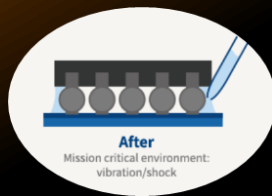
Real time temperature monitoring software



Rigorous burn-in program
-40°C ~ 125°C

underfill for better reliability

Heatsink attached (Optional)



Extreme Robust Design_ Rugged DIMM

MIL-STD-810G
Mechanical Shock Tested



Mounting hole

Fixed DRAM on M/B to protect
vibration impact



JEDEC DDR4

SODIMM DDR4-2666/3200
Capacity: 16/32GB
Temp. range: 0-85/-40~85oC

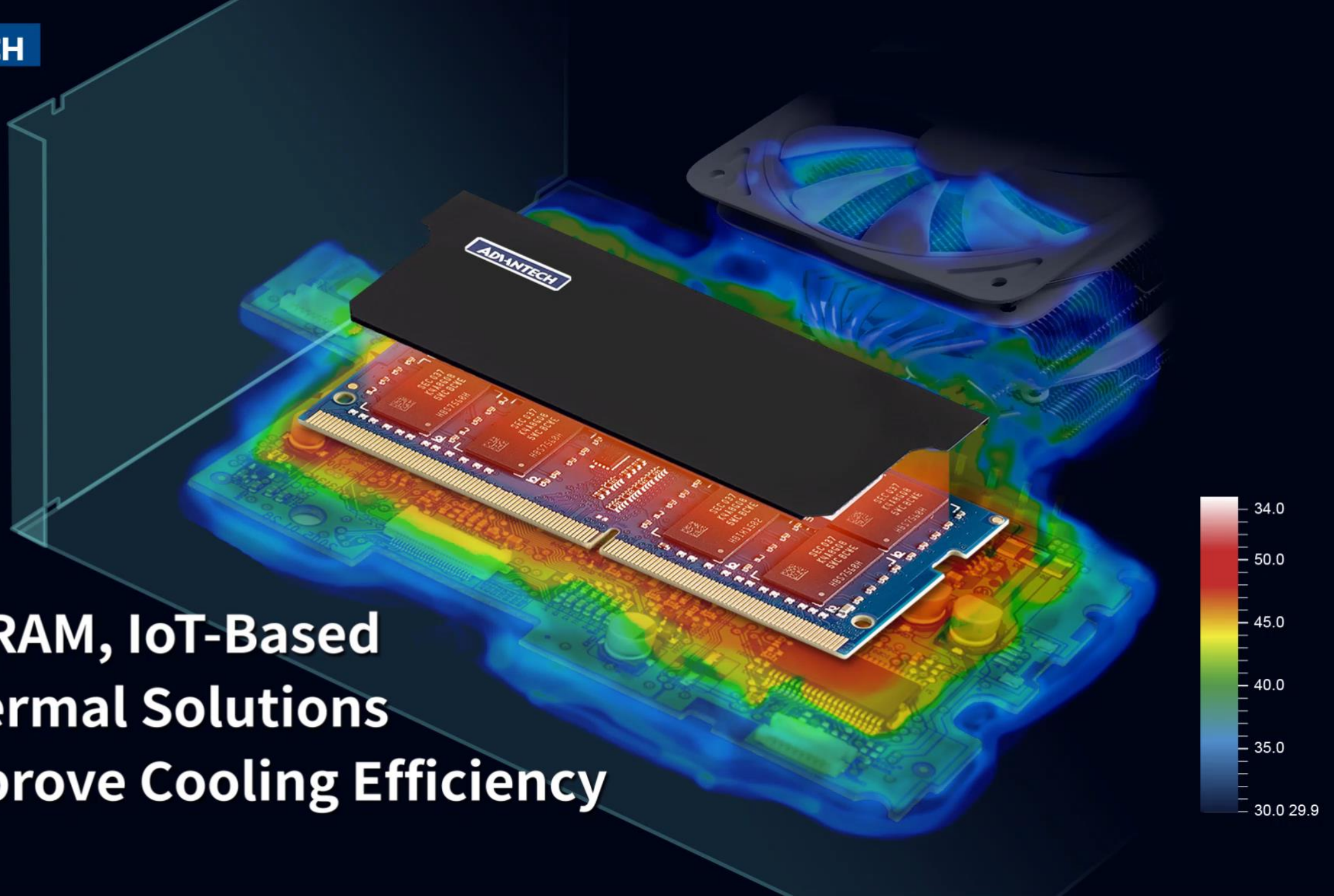
- MIL-810G Verified
- ECC function support
- SOM 5962 Compatible



Ordinary SODIMM Memory

Rugged SODIMM Memory

SGRAM, IoT-Based Thermal Solutions Improve Cooling Efficiency



CHOOSING THE BEST SQR SOLUTION

Features	Longevity	Price sensitive	Extend temp. -20 ~ 85 °C	Wide temp. -40 ~ 85 °C	Ultra wide temp. -40~125°C	Robust	Reliability ECC function	High speed	Thermal solution
Robots		SQR-SD5N SQR-SD4N	SQR-SD4M	SQR-SD4I	SQR-SD4E				
Medical	SQR-SD4N SQR-SD3N	SQR-SD5N SQR-SD4N					SQR-SD5N (ECC) SQR-SD4N (ECC)	SQR-SD5N	
Kiosk/POS/Automation		SQR-SD4N SQR-SD3N							
Outdoor Kiosk			SQR-SD4M SQR-SD3M	SQR-SD4I SQR-SD3I					
In-Vehicle/ Transportation			SQR-SD4M SQR-SD3M	SQR-SD4I SQR-SD3I	SQR-SD4E	SQR-YD4N SQR-YD4I			SQR-HS4N SQR-HS3N
HPEC/Test Equipment	SQR-SD5N SQR-SD4N	SQR-SD5N SQR-SD4N SQR-UD5N SQR-UD4N					SQR-SD5N (ECC) SQR-SD4N (ECC) SQR-UD5N (ECC)	SQR-SD5N SQR-UD5N SQR-RD5N	
Military/Defense	SQR-SD5I SQR-SD4I			SQR-SD5I SQR-SD4I SQR-RD4I	SQR-SD4E	SQR-YD4N SQR-YD4I	SQR-SD5I (ECC) SQR-SD4I (ECC) SQR-YD4I (ECC)	SQR-SD5N	SQR-HS4N SQR-HS3N
Workstation/ Firewall		SQR-UD5N SQR-UD4N					SQR-UD5N (ECC) SQR-UD4N (ECC)	SQR-RD5N SQR-RD4N SQR-RD4I	

Customization Services Additional customer requests are served by all SQRAM models — include SPD timing fine-tuning, SPD write protect, sidefill, and conformal coating

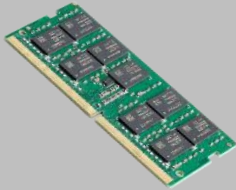
Successful story

Inspection Equipment

Challenge

Precision quality check
High speed module with low latency and error correct function to ensure product quality by high vision inspection machines

Product
SQR-SD4N(E)
SQR-SD5



Winning factors

- Pioneer time to market to win by Early access product
- AE technical direct support



Outdoor EV charger

Challenge

- Intensive low temperature request in critical environment

Product
SQR-SD3I-2GB



Winning factors

- Extended temp -40~85oC support
- PCB 30u" golden finger passed Microsection test
- 100% pass with ZERO RMA in one year pilot run period



Robotics AMR

Challenge

- Wide temperature necessary
- Water proof
- Vibration against

Product
SQR-SD4I (-40-85)



Winning factors

- 100% Vibration in-house test
- Conformal coating and sidefill

Video wall

Challenge

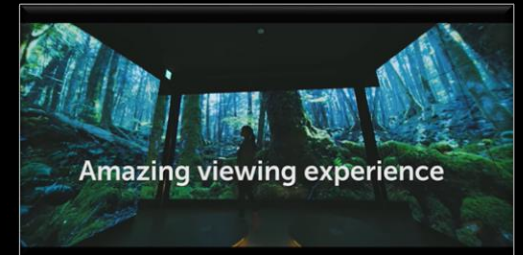
- High speed and capacity request for image and multitask process

Product
SQR-RD4N 3200 16GB



Winning factors

- 3 year longevity with stable supplying
- Locked BOM to ensure high compatibility with system
- Customization package



Amazing viewing experience

DDR5 Series

						
Module Type	SO-DIMM	U-DIMM	Wide Temp SO-DIMM	ECC SO-DIMM	ECC U-DIMM	RDIMM
Frequency	4800	4800	4800	4800	4800	4800
Density	8G/16G/32G	8G/16G/32G	16G/32G	16G/32G	16G/32G	16G/32G/64G
Voltage	1.1V	1.1V	1.1V	1.1V	1.1V	1.1V
Pin	262	288	262	262	288	288
Chip IC	Samsung Micron	Samsung Micron	Samsung	Samsung	Samsung	Samsung Micron
Operating Temp.(TA)	0-95℃	0-85℃	-40-85℃	0-85℃	0-85℃	0-85℃
longevity	2024 Q4	2024 Q4	2024 Q4	2024 Q4	2024 Q4	2024 Q4
P/N	SD5N	UD5N	SD5I	SD5(ECC)	UD5(ECC)	RD5N

DDR4 3200 Series(0-85°C)



Module Type	SO-DIMM	U-DIMM	ECC SO-DIMM	ECC U-DIMM	RDIMM
Frequency	3200	3200	3200	3200	3200
Density	4G/8G/16G/32G	8G/16G/32G	8G/16G/32G	8G/16G/32G	4G/8G/16G/32G 64G/128G
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
Pin	260	288	260	288	288
Chip IC	Samsung Micron	Samsung	Samsung	Samsung	Samsung
Longevity	2024 Q4	2024 Q4	2024 Q4	2024 Q4	2024 Q4
Operating Temp.(TA)	0-85°C	0-85°C	0-85°C	0-85°C	0-85°C
P/N	SD4N	UD4N	SD4(ECC)	UD4(ECC)	RD4N

DDR4 3200 Series(Wide Temp)



Module Type	SO-DIMM	SO-DIMM	SO-DIMM	ECC SO-DIMM	RDIMM
Frequency	3200	3200	3200	3200	3200
Density	8G/16G/32G	4G/8G/16G/32G	8G/16G/32G	8G/16G/32G	8G/16G/32G/64G/128G
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
Pin	260	260	260	260	288
Chip IC	Samsung	Samsung	Micron	Samsung	Samsung
Longevity	2024 Q4	2024 Q4	2025	2024 Q4	2024 Q4
Operating Temp.(TA)	-20-85℃	-40-85℃	-40-125℃	-40-85℃	-40-85℃
P/N	SD4M	SD4I	SD4E	SD4(ECC)	RD4I

DDR4 2666 Series(0-85°C)

					
Module Type	SO-DIMM	U-DIMM	ECC SO-DIMM	ECC U-DIMM	RDIMM
Frequency	2666	2666	2666	2666	2666
Density	2G/4G/8G 16G/32G	4G/8G 16G/32G	4G/8G/16G/32G	4G/8G/16G	4G/8G/16G
Voltage	1.2V	1.2V	1.2V	1.2V	1.2V
Pin	260	288	260	288	288
Chip IC	Samsung	Samsung	Samsung	Samsung	Samsung
longevity	2024 Q4	2024 Q4	2024 Q4	2024 Q4	2024 Q4
Operating Temp.(TA)	0-85°C	0-85°C	0-85°C	0-85°C	0-85°C
P/N	SD4N	UD4N	SD4(ECC)	UD4(ECC)	RD4N

DDR4 2666 Series(Wide Temp)



Module Type	SO-DIMM	SO-DIMM	ECC SO-DIMM	ECC U-DIMM
Frequency	2666	2666	2666	2666
Density	4G/8G	4G/8G/16G/32G	4G/8G/16G/32G	4G/8G/16G/32G
Voltage	1.2V	1.2V	1.2V	1.2V
Pin	260	260	260	288
Chip IC	Samsung	Samsung	Samsung	Samsung
longevity	2024 Q4	2024 Q4 2023 Q3(32G)	2024 Q4 2023 Q3(32G)	2024 Q4 23 Q3(32G)
Operating Temp.(TA)	-20-85℃	-40-85℃	-40-85℃	0-85℃
P/N	SD4M	SD4I	SD4(ECC)	UD4(ECC)

DDR3L 1600 Series(0-85°C)



Module Type	SO-DIMM	U-DIMM	ECC SO-DIMM	ECC U-DIMM
Frequency	1600	1600	1600	1600
Density	2G/4G/8G	2G/4G/8G	2G/4G/8G	2G/4G/8G
Voltage	1.35V	1.35V	1.35V	1.35V
Pin	204	240	204	288
Chip IC	Samsung Micron	Samsung Micron	Samsung Micron	Samsung Micron
longevity	2024 Q4(Samsung) 2026(Micron)	2024 Q4(Samsung) 2026(Micron)	2024 Q4(Samsung) 2026(Micron)	2024 Q4(Samsung) 2026(Micron)
Operating Temp.(TA)	0-85°C	0-85°C	0-85°C	0-85°C
P/N	SD3N	UD3N	SD3(ECC)	UD3(ECC)

DDR3L 1600 Series(Wide Temp)



Module Type	SO-DIMM	SO-DIMM	U-DIMM	ECC SO-DIMM
Frequency	1600	1600	1600	1600
Density	2G/4G/8G	2G/4G/8G	2G/4G/8G	2G/4G/8G
Voltage	1.35V	1.35V	1.35V	1.35V
Pin	204	204	240	204
Chip IC	Samsung	Samsung	Samsung Micron	Samsung Micron
longevity	2024 Q4	2024 Q4(Samsung) 2026(Micron)	2024 Q4(Samsung)	2024 Q4(Samsung) 2026(Micron)
Operating Temp.(TA)	-20-85℃	-40-85℃	-20-85℃	-40-85℃
P/N	SD3M	SD3I	UD3M	SD3(ECC)

DDR2/DDR1 Series



Module Type	DDR2 SO-DIMM	DDR1 SO-DIMM	DDR1 SO-DIMM
Frequency	667	333	333
Density	1G/2G	512M	1G
Voltage	1.8V	2.6V	2.6V
Pin	200	200	200
Chip IC	Micron	Micron	Micron
longevity	2026	2026	2026
Operating Temp.(TA)	-40-85℃	0-70℃	-20-85℃
P/N	SD2I	SD1	SD1

Rugged Series



Module Type	DDR4 SO-DIMM	DDR4 SO-DIMM ECC	DDR3 SO-DIMM
Frequency	2666/3200	3200	1600
Density	16G/32G	16G/32G	4G/8G
Voltage	1.2V	1.2V	1.35V
Pin	260	260	204
Chip IC	Samsung	Samsung	Samsung Micron
longevity	2023 Q3	2023 Q3	2024 Q4(Samsung) 2026(Micron)
Operating Temp.(TA)	0-85℃ 20-85℃	0-85℃ -40-85℃	0-85℃ -40-85℃
P/N	YD4N	HS4N	HS3N/HS3I

Co-Creating the Future of the IoT World

