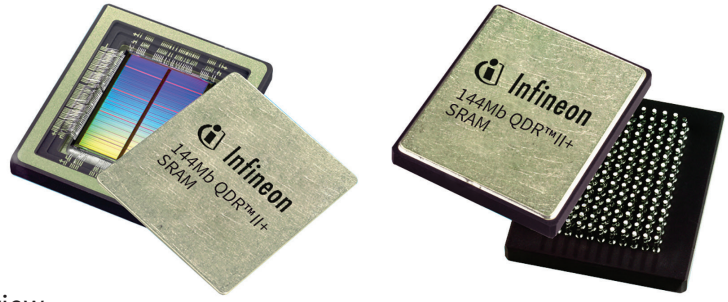
Product brief

144-Mbit QDR® II+ Synchronous SRAM

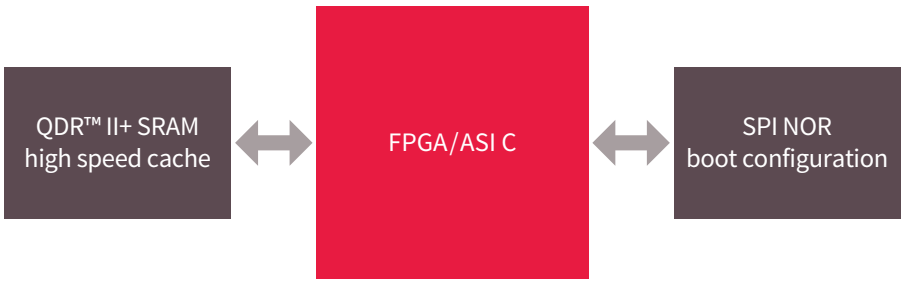
Infineon's HiRel memories perform in the most extreme environments



Overview

Infineon's 144-Mbit Quad Data Rate (QDR™)-II+, Synchronous (Sync) SRAMs designed with Infineon's patented RadStop™ Technology are optimized for space as well as other harsh environment applications. The 144-Mbit QDR™ II+ SRAMs are the next generation QDR™ II+ SRAM devices continuing the space grade legacy featuring lower power and higher performance than the previous generation. The QDR™ II+ SRAMs are available in x18/x36, two-word/four-word data bus configurations, and with and without on-die-termination to optimize the power consumption. The QDR™ II+ SRAM architecture provides a low latency and random memory access capability needed for high performance applications such as external cache memories. Infineon's QDR™ II+ Sync SRAM family provides the Random Transaction Rate (RTR) necessary to break system bottlenecks.

Infineon's state-of-the art RadStop™ Technology is radiation hardened through propriety design and process hardening techniques. Our synchronous SRAM devices are of the highest reliability and performance and well suited for applications for radar implementations and on-board image processing applications due to the low latency and random memory access capability.



Infineon's radiation-hardened memories are QML-V certified, meeting the reliability and lifecycle demands of space applications. Our RadStop™ memory solutions enhance overall system computing limits while providing Size, Weight, and Power (SWaP) benefits and greater design flexibility.

www.infineon.com/cypress

Key benefits

Certified reliability
- DLAM QML-V
- QCI, datapacks
- RHA, WLAT

Ultimate radiation
- >200 Krad TID
- >120 LET SEL iimmunity
- <3.34e^{-7} Err/bit.day

Product features
- 250 MHz max frequency
- Concurrent R/W
- On-die-termination
- Throughput up to 36 Gbps
- Low latency (2 cycles)
- HSTL I/O
- SWaP optimized CCGA package with Six Sigma columns

Key applications
- Radar (SAR, LiDAR)
- On-orbit image processing

Differentiated memory portfolio
- Performance
- Density
- Reliability
- Longevity

Key features

- 250 MHz/36 Gbps maximum frequency of operation/throughput
- 4-Mbit x18, 2-Mbit x36 bus-width configurations in two-word or four-word burst mode
- -55 to +125°C military temperature grade
- Two independent unidirectional data ports for concurrent read/write transactions
- Double Data Rate (DDR) address port
- Output impedance matching input (ZQ) matches the device outputs to system data bus impedance
- On-die-termination
- 1.5 – 1.8 V (HSTL) I/O signaling standards
- Controller available for Xilinx and Microsemi FPGAs
- QML-V qualified

Technical support

Infineon datasheet
144-Mbit 2-Burst SRAMs with RadStop™
144-Mbit 4-Burst SRAMs with RadStop™

DLAM datasheet
5962R18214, 144 Mb SRAM x18
5962R18215, 144 Mb SRAM x36

EcoSystem support
Mezzanine QDRII+ Board

Parts list

Density	Description	Infineon P/N DLAM P/N	Operating temperature [°C]	Qual level	TID[1]	SEL[2]	SEU[3]	SEFI[4]	PD[5]
144-Mbit	QDR™ II+ x18 burst of 2	CYRS2642KV18-250GCMB 5962R1821401VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT2642KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x18 burst of 4	CYRS2643KV18-250GCMB 5962R1821402VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT2643KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x36 burst of 2	CYRS2644KV18-250GCMB 5962R1821501VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT2644KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x36 burst of 4	CYRS2645KV18-250GCMB 5962R1821502VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT2645KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x18 burst of 2 w/o ODT	CYRS1642KV18-250GCMB 5962R1821403VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT1642KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x18 burst of 4 w/o ODT	CYRS1643KV18-250GCMB 5962R1821404VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT1643KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x36 burst of 2 w/o ODT	CYRS1644KV18-250GCMB 5962R1821503VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT1644KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ x36 burst of 4 w/ ODT	CYRS1645KV18-250GCMB 5962R1821504VXF	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
		CYPT1645KV18-250GCMB	-55 to +125	PROTOTYPE	–	–	–	–	–
	QDR™ II+ QML-V die	CYRS2643KV18-1X24M	-55 to +125	QML-V	200	>120	<3.34e^{-7}	Immune 120 LET	>1e^{9}
	QDR™ II+ prototype die	CYPT2643KV18-1X24M	-55 to +125	PROTOTYPE	–	–	–	–	–

1) Total Ionizing Dose [Krad (Si)]
2) Single Event Latchup [LET] @ 125°C
3) Single Event Upset [err/bit.dy] Geo sync-solar min; Note: SEU is <1e^{-12} with Controller EDAC
4) Single Event Functional Interrupt [err/dev.dy] geo sync-solar min
5) Prompt Dose [rad (Si)/s]

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