LX2160-Space
Radiation-Tolerant 16x ARM® Cortex®-A72 2.2 GHz Processor



1 PRODUCT SUMMARY

LX2160-Space is a radiation tolerant multicore processing solution, combining 16x Arm® Cortex®-A72 cores with datapath acceleration optimized for L2/3 packet processing, together with security offload, robust traffic management and quality of service, on low power FinFET process technology.

The high level of integration delivers significant performance benefits with up to 100 GbE, hardware L2 switching, DPAA2 with 100 Gbps decompression/compression and 50 Gbps Encryption engine, multiple PCIe Gen3.0. It also features several general-purpose interfaces such as CAN, SPI, I^2C, and UART.

It is a Space-qualified, radiation-tolerant version of Teledyne e2v LX2160 standard Hi-Rel component.

This document provides the specific features and characteristics of the LX2160-Space. From the functional, electrical and computing performance point of view, LX2160-Space is equivalent to the standard version. For the general characteristics, the datasheet and reference manual of the commercial version are applicable.

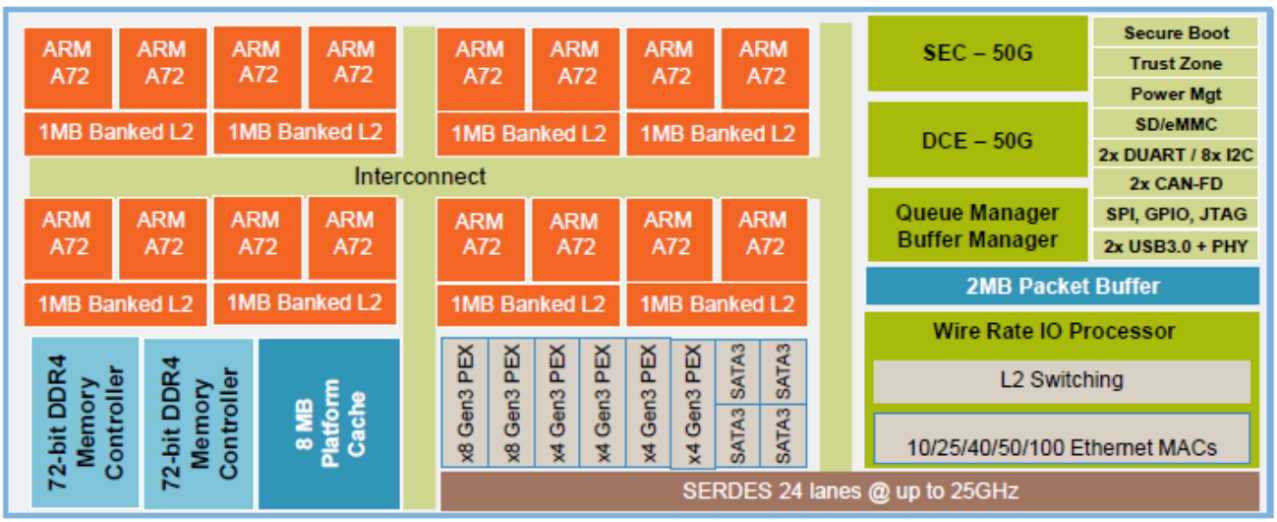
2 TYPICAL END APPLICATIONS

- Communication Satellites / Constellations – Requiring AI / Security
- Human Mission Exploration & Science Missions
- Early Warning, Observation Satellites - Security / Automated situation detection & awareness / AI
- Defense In Space
- High bandwidth Space Observation
- Meteorological Satellites

An Important Notice at the end of this datasheet addresses availability, warranty, changes, use in critical applications, intellectual property matters and other important disclaimers

Downloaded from Arrow.com.

3 BLOCK DIAGRAM



4 SPACE GRADE PARTS KEY FEATURES

4.1 Space Qualification

- **NASA Level 1, 2 or 3** based on NASA EEE-INST-002 - Section M4 – Screening and qualification in accordance with PEM-INST-001
- **ECSS Class 3** - Screening and qualification in accordance with ECSS-Q-ST-60-13C
- **Teledyne e2v X1** New Space Grade
- Full lot traceability and serializing

4.2 Radiation Tolerance

NASA and ECSS Flight Models:

- SEL: Additional characterization up to 80 MeV·cm²/mg is planned (target)- No destructive SEL LET up to 60 MeV.cm²/mg
- SEU/SEFI: Characterized up to 60 MeV.cm²/mg
- TID Target: 100 krad (Si)
- Protons: Characterization up to 200 MeV (target)

Teledyne e2v X1 New Space Grade Flight Models:

- SEL: No destructive SEL LET up to 43 MeV.cm²/mg
- TID Target: 35 krad (Si)

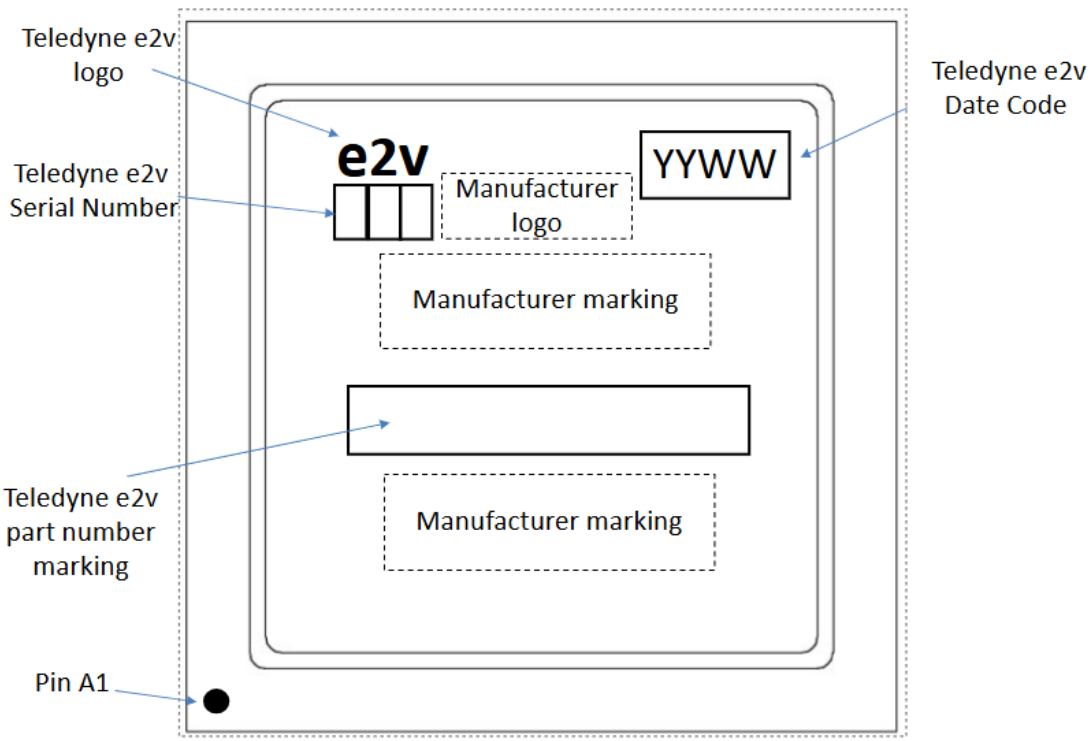
Irradiation reports are available upon request, please contact your local Teledyne e2v sales office.

An Important Notice at the end of this datasheet addresses availability, warranty, changes, use in critical applications, intellectual property matters and other important disclaimers

Downloaded from Arrow.com.

4.3 Package & physical properties

Marking drawing for the LX2160-Space is given below:



Physical properties

- Solder Balls Composition - 63% Sn, 37% Pb
- Mass of the device with SnPb solder balls is 20.6 ± 0.1g
- CTE of the package: please contact your Teledyne e2v technical support
- Outgassing: expected compliant with ASTM 595 and ESCC-Q-ST-70-02

General package characteristics are given in the datasheet of the standard version :
Datasheet DS-60S-222625_LX2160.pdf

An Important Notice at the end of this datasheet addresses availability, warranty, changes, use in critical applications, intellectual property matters and other important disclaimers

Downloaded from Arrow.com.

5 LX2160-SPACE PART NUMBERING INFORMATION

Family	Performance Level	Number of cores	Derivatives	Temperature range	Options	Package Type	CPU Frequency, DDR Data Rate	Die Revision	Quality level (1)
LX(X) (2) = 16FFC	2	**08** = 8 **12** = 12 **16** = 16	**0** = first	**A** = -40/105 **M** = -55/125	**C** = SEC, CANFD enabled **E** = SEC enabled, CAN 2.0b enabled (no CAN-FD support) **N** = SEC disabled, CAN 2.0b enabled (no CAN-FD support)	**3** = 40x40mm FC PBGA / C4 = pb-free, / C5 = SnPb (63/37)	**1826** = 1800 MHz, 2600 MT/s **2029** = 2000MHz, 2900 MT/s **2232** = 2200 MHz, 3200 MT/s	**B** = Rev 2.0	-**N1** =Nasa Level 1 -**N2** = Nasa Level 2 -**N3** = Nasa Level 3 **EM** = Engineering Models **EQM** = Engineering Qualification Models -**E3** = ECSS Class 3 -**X1** = Teledyne e2v X1 New Space Grade

Notes:

1. To know more about grades please refer to NE60S220869 on our website (https://semiconductors.teledyne-e2v.com/globalassets/e2v/article-files/ne-60s-220869-b0-1.pdf)
2. The letter X in the part number designates a "Prototype" product that has not been qualified by e2v. Reliability of a LXX part number is not guaranteed and such part-number shall not be used in Flight Hardware. Product changes may still occur while shipping prototypes.

6 ORDERABLE PARTS

	Parts
EM	LX2160MxxxBEM
EQM	LX2160MxxxBEQM
-E3, -X1	LX2160AxxxByy
NASA (-N1, -N2, -N3)	LX2160MxxxBzz

Notes:

1. "xxx" should be replaced by a combination of the following fields:
   - Options: C, E, N
   - Package Type: 3
   - CPU Frequency and DDR Data Rate: 1826, 2029, 2232
2. "yy" should be replaced by Grades: -E3, -X1
3. “zz” should be replaced by Grades: -N1, -N2, -N3,

For availability of the different versions, contact your local Teledyne e2v sales office.

7 LX2160 PRODUCT FEATURES

Please refer to Teledyne e2v datasheet reference: Datasheet DS-60S-222625_LX2160.pdf

Downloaded from Arrow.com.

8 REVISION HISTORY

This table summarizes revisions to this document.

Issue	Date	Comments
DS 60S 223095(A)	May 2023	Initial revision
DS 60S 223095(B)	November 2025	-X1 added + Orderable parts + Visual updated + Link updated

An Important Notice at the end of this datasheet addresses availability, warranty, changes, use in critical applications, intellectual property matters and other important disclaimers

Downloaded from Arrow.com.

IMPORTANT NOTICE

Teledyne e2v provides technical and reliability data, including datasheets, design resources, application and other recommendations ("Resources") "as is" at the date of its disclosure. All Teledyne e2v Resources are subject to change without notice to improve reliability, function or design, or otherwise.

These Resources are intended for skilled developers designing with Teledyne e2v products. You are solely responsible for a. selecting the appropriate Teledyne e2v products for your application, b. designing, validating and testing your application, and c. ensuring your application meets applicable standards, and any other safety, security, or other requirements.

Teledyne e2v makes no warranty, representation or guarantee regarding the suitability of these Resources for any particular purpose, or the continuing production of any of its products. Teledyne e2v grants you permission to use these Resources only for the development of an application that uses the Teledyne e2v products described in the Resource. Other reproduction and display of these Resources are not permitted. No license, express or implied, to Teledyne e2vintellectual property right or to any third party intellectual property right is granted by this document or by the conduct of Teledyne e2v.

To the maximum extent permitted by law, Teledyne e2v disclaims (i) any and all liability for any errors, inaccuracies or incompleteness contained in these Resources, or arising out of the application of or use of these Resources, and (ii) any and all express or implied warranties, including those of merchantability, fitness for a particular purpose or non-infringement of intellectual property rights. You shall fully indemnify Teledyne e2v against, any claims, damages, costs, losses, and liabilities arising out of your application of or use of these Resources.

Teledyne e2v's acceptance of any products purchase orders is expressly conditioned upon your assent to Teledyne e2v's General Terms and Conditions of Sale which are stated in any Teledyne e2v's offer and can be found at www.teledyne-e2v.com/about-us/terms-and-conditions/.
The provision of these Resources by Teledyne e2v does not expand or otherwise alter Teledyne e2v's applicable warranties or warranty disclaimers for Teledyne e2v products.

Mailing Address: Teledyne e2v Semiconductors SAS, 4 rue de Rochepleine, 38120 Saint Egrève, France.
Telephone: +33 4 76 58 30 00
e-mail: hotline-std@teledyne.com
Copyright © 2025, Teledyne e2v Semiconductors SAS

Downloaded from Arrow.com.