



SECURE CONNECTIONS
FOR A SMARTER WORLD

NXP AUTOMOTIVE PROCESSORS AND MICROCONTROLLERS PRODUCT MAP

Affordable deployment of safe and secure driving solutions across the entire fleet of vehicles.

Provides high-performance processing solutions to advance vehicle architecture through safety, connectivity, security and dedicated accelerators.



BODY AND COMFORT

Accelerating software development with safety and security everywhere.



All AP products are part of the [Product Longevity](#) program for (at least) 15 years of supply availability. They are also part of NXP's [SafeAssure](#)® program and the [EdgeLock](#)® [Assurance](#) program.



VEHICLE CONTROL

Driving propulsion domain control, electrification and safety.



VEHICLE NETWORKING

Enabling Intelligent, connected and software-defined vehicles.

USEFUL LINKS

nxp.com/auto	community.nxp.com	nxp.com/S32Z-E	nxp.com/MBDT
nxp.com/ProductLongevity	nxp.com/S32	nxp.com/S32V	nxp.com/AUTOSAR
nxp.com/SafeAssure	nxp.com/S32K	nxp.com/MagniV	nxp.com/autoDevKits
nxp.com/EdgeLock	nxp.com/S32G	nxp.com/S32DS	nxp.com/autoSWtools

GENERAL-PURPOSE MICROCONTROLLERS BUILT ON ARM® CORTEX®-M TECHNOLOGY, SUPPORTING UP TO ASIL-D FUNCTIONAL SAFETY

Device	Core	Frequency (MHz)	Flash	RAM	MPU	EEPROM	ECC	Security	ADC	Serial Communication	FlexIO	DMA	SAI	Ethernet 100 Mbps (TSN)	CRC	Eternal Memory Interface	FOTA	Timer	Other Peripherals	Debug	Operating Voltage	AEC-Q100 Temp Range	ISO 26262 Functional Safety	Packaging
S32K341	Cortex-M7 LS	160	1 MB	256	1	-	Flash + RAM	HSE-B	2x 24-ch 12-bit	4x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	2x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-D	100/172 HDQFP
S32K342	Cortex-M7 LS	160	2 MB	256	1	-	Flash + RAM	HSE-B	2x 24-ch 12-bit	4x CAN FD 2x I ² C 4x SPI 4x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	2x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-D	100/172 HDQFP
S32K344	Cortex-M7 LS	160	4 MB	512	1	-	Flash + RAM	HSE-B	3x 24-ch 12-bit	6x CAN FD 2x I ² C 6x SPI 16x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	3x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-D	172 HDQFP 257 MAPBGA
S32K322	2x Cortex-M7	160	2 MB	256	1	-	Flash + RAM	HSE-B	2x 24-ch 12-bit	4x CAN FD 2x I ² C 4x SPI 4x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	2x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-B	100/172 HDQFP
S32K324	2x Cortex-M7	160	4 MB	512	1	-	Flash + RAM	HSE-B	3x 24-ch 12-bit	6x CAN FD 2x I ² C 6x SPI 16x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	3x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-B	172 HDQFP 257 MAPBGA
S32K311	Cortex-M7	120	1 MB	128	1	-	Flash + RAM	HSE-B	2x 24-ch 12-bit	3x CAN FD 2x I ² C 4x SPI 4x UART/LIN	16-ch	12-ch			1		A/B Swap, Rollback (HW), Automatic Address Translation	2x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-B	48 LQFP 100 HDQFP
S32K312	Cortex-M7	120	2 MB	192	1	-	Flash + RAM	HSE-B	2x 24-ch 12-bit	6x CAN FD 2x I ² C 4x SPI 8x UART/LIN	32-ch	12-ch			1		A/B Swap, Rollback (HW), Automatic Address Translation	2x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-B	100/172 HDQFP
S32K314	Cortex-M7	160	4 MB	512	1	-	Flash + RAM	HSE-B	3x 24-ch 12-bit	6x CAN FD 2x I ² C 6x SPI 16x UART/LIN	32-ch	32-ch	2	Yes	1	QuadSPI	A/B Swap, Rollback (HW), Automatic Address Translation	3x eMIOS	LCU, BCTU	SWD, SWO, JTAG	3.3 V, 5 V or split	Grade 1 Grade 2	up to ASIL-B	172 HDQFP 257 MAPBGA
S32K142	Cortex-M4F	112	256 KB	32	1	4 KB Emulated	Flash + RAM	CSEc	2x 16-ch 12-bit	2x / 2x* CAN 1x / 2x* CAN FD 1x I ² C 2x SPI 2x UART/LIN	1	16-ch			1		Rollback (SW)	4x FlexTimer	PDB	SWD, SWO, JTAG	2.7 V – 5.5 V	Grade 0 Grade 1 Grade 2	up to ASIL-B	48/64/100 LQFP
S32K144	Cortex-M4F	112	512 KB	64	1	4 KB Emulated	Flash + RAM	CSEc	2x 16-ch 12-bit	3x / 2x* CAN 1x / 2x* CAN FD 1x I ² C 3x SPI 3x UART/LIN	1	16-ch			1		Rollback (SW)	4x FlexTimer	PDB	SWD, SWO, JTAG	2.7 V – 5.5 V	Grade 0 Grade 1 Grade 2	up to ASIL-B	48/64/100 LQFP 100 MAPBGA
S32K146	Cortex-M4F	112	1 MB	128	1	4 KB Emulated	Flash + RAM	CSEc	2x 24-ch 12-bit	3x CAN 2x CAN FD 1x I ² C 3x SPI 3x UART/LIN	1	16-ch			1		A/B Swap* + Rollback (SW)	6x FlexTimer	PDB	SWD, SWO, JTAG	2.7 V – 5.5 V	Grade 1 Grade 2	up to ASIL-B	64/100/144 LQFP 100 MAPBGA
S32K148	Cortex-M4F	112	2 MB	256	1	4 KB Emulated	Flash + RAM	CSEc	2x 32-ch 12-bit	3 CAN 3 CAN FD 2x I ² C 3x SPI 3x UART/LIN	1	16-ch	2	1x IEEE-1588 MAC w/timestamping	1	1x QuadSPI w/HyperBus	A/B Swap* + Rollback (SW)	8x FlexTimer	PDB	SWD, SWO, JTAG	2.7 V – 5.5 V	Grade 1 Grade 2	up to ASIL-B	100/144/176 LQFP 100 MAPBGA
S32K116	Cortex-M0+	48	128 KB	17	1	2 KB Emulated	Flash + RAM	CSEc	1x 13-ch 12-bit	1 CAN 1 CAN FD 1x I ² C 1x SPI 2x UART/LIN	1	16-ch			1		Rollback (SW)	2x FlexTimer	PDB	SWD	2.7 V – 5.5 V	Grade 1 Grade 2	up to ASIL-B	32 QFN 48 LQFP
S32K118	Cortex-M0+	48	256 KB	25	1	2 KB Emulated	Flash + RAM	CSEc	1x 16-ch 12-bit	1 CAN 1 CAN FD 1x I ² C 2x SPI 2x UART/LIN	1	16-ch			1		Rollback (SW)	2x FlexTimer	PDB	SWD	2.7 V – 5.5 V	Grade 1 Grade 2	up to ASIL-B	48/64 LQFP
KEAZ64	Cortex-M0+	48	64 KB	8		Emulated			1x 16-ch 12-bit	1 CAN 2x I ² C 2x SPI 3x UART/LIN					1			6-ch 2-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		64 LQFP 80 LQFP
KEAZ128	Cortex-M0+	48	128 KB	16		Emulated			1x 16-ch 12-bit	1 CAN 2x I ² C 2x SPI 3x UART/LIN					1			6-ch 2-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		4 LQFP 80 LQFP
KEAZN8	Cortex-M0+	48	8 KB	1		Emulated			1x 12-ch 12-bit	1x I ² C 1x SPI 1x UART/LIN					1			6-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		16 TSSOP 24 QFN
KEAZN16	Cortex-M0+	40	16 KB	2		256 B			1x 16-ch 12-bit	2x I ² C 2x SPI 3x UART/LIN					1			6-ch 2-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		32 LQFP 64 LQFP
KEAZN32	Cortex-M0+	40	32 KB	4		256 B			1x 16-ch 12-bit	2x I ² C 2x SPI 3x UART/LIN					1			6-ch 2-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		32 LQFP 64 LQFP
KEAZN64	Cortex-M0+	40	64 KB	4		256 B			1x 16-ch 12-bit	2x I ² C 2x SPI 3x UART/LIN					1			6-ch 2-ch 2-ch		SWD	2.7 V – 5.5 V	Grade 1 Grade 2 Grade 3		32 LQFP 64 LQFP

* without HW swap support, code compiled as position independent code
 All General-Purpose MCUs are part of the Product Longevity program for (at least) 15 years of supply availability. Also, part of our SafeAssure program for Functional Safety.

VEHICLE NETWORK PROCESSORS BUILT ON ARM CORTEX-M7 AND -A53 TECHNOLOGIES, SUPPORTING UP TO ASIL-D FUNCTIONAL SAFETY

Device	Core	Freq (MHz)	RAM (MB)	Standby RAM (KB)	External RAM (Bits Width)	Security	ADC	Serial Communication	FlexRay™	USB	HW Isolation	Ethernet MAC	Ethernet Type	External Memory Supported	PWM	Timers	Debug	Supply Voltage	AEC-Q100 Temp Range	ISO 26262 Functional Safety	Packaging
S32G378A	3x Cortex-M7 4x Cortex-A53	400 1000 – 1300	15 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (16 domains)	1x 1G 3x 2.5G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	13x STM 12x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2	up to ASIL-D	525 FC-PBGA
S32G379A	4x Cortex-M7 4x Cortex-A53	400 1000 – 1300	20 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (16 domains)	1x 1G 3x 2.5G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	13x STM 12x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2	up to ASIL-D	525 FC-PBGA
S32G398A	3x Cortex-M7 8x Cortex-A53	400 1000 – 1300	15 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (16 domains)	1x 1G 3x 2.5G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	13x STM 12x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2	up to ASIL-D	525 FC-PBGA
S32G399A	4x Cortex-M7 8x Cortex-A53	400 1000 – 1300	20 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (16 domains)	1x 1G 3x 2.5G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	13x STM 12x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2	up to ASIL-D	525 FC-PBGA
S32G233A	1x Cortex-M7 2x Cortex-A53	1000, 400	6 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (8 domains)	3x 1G 1x 2.G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	8x STM 7x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2, Grade 3	up to ASIL-D	525 FC-PBGA
S32G234M	3x Cortex-M7	1000, 400	8 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2		XRDC (8 domains)	3x 1G 1x 2.G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	8x STM 7x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2, Grade 3	up to ASIL-D	525 FC-PBGA
S32G254A	3x Cortex-M7 2x Cortex-A53	1000, 400	8 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (8 domains)	3x 1G 1x 2.G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	8x STM 7x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2, Grade 3	up to ASIL-D	525 FC-PBGA
S32G274A	3x Cortex-M7 4x Cortex-A53	1000, 400	8 MB	32	DDR3L / LPDDR4 (32bit)	HSE_H	2x ADCs (6-ch) 12bit	20x CAN 5x I ² C 10x SPI 7x LIN/UART	2	1x USB 2.0 OTG	XRDC (8 domains)	3x 1G 1x 2.G	MII/ RMII/ RGMII/ SGMII	QSPI NOR e.MMC 5.1 NAND SD 3.0 2x 2 lanes Gen3 PCIe	6-ch x 32bit	8x STM 7x WDT	Aurora, JTAG, SWD	0.8V-3.45V	Grade 2, Grade 3	up to ASIL-D	525 FC-PBGA

All Vehicle Network Processors are part of the Product Longevity program for (at least) 15 years of supply availability and are also part of our SafeAssure program for Functional Safety and our EdgeLock™ assurance program for Security.

VISION PROCESSORS BUILT ON ARM CORTEX-A TECHNOLOGY, SUPPORTING UP TO ASIL-C FUNCTIONAL SAFETY

Device	Core	Freq	Cache	DRAM Support	SRAM (MB)	Video Accelerator	Camera Input	Graphics Accelerator	SD/MMC SDIO	Serial Communication	GPIO	DMA	PIT	Ethernet	Display Interface	External Memory Interface	Image Processor	Operating Voltage	AEC-Q100 Temp Range	ISO 26262 Functional Safety	Packaging
S32V234	4x Cortex-A53	4x 1 GHz	L1: 32 KB/32 KB I/D per core L2: 256 KB unified per cluster	x 64 LPDDR2, DDR3 and DDR3L	4	H.264 and MJPEG encode and decode	MIPI-CSI, VIU-Lite	3DGPU w/ OpenCV	1	2x CAN FD 3x I ² C 4x SPI 2x UART	P (3.3 V)	32-ch	2	1 Gb with IEEE-1588	TFT, up to 150 MPixels/sec (e.g., 1920 x 1080 60 Hz)	QuadSPI, PCIe	ISP Dual APEX2-CL eIQ Auto	1.0 ± 5% for digital core input supply voltage	Grade 1	up to ASIL-C	621 Flip Chip BGA

All Vision Processors are part of the Product Longevity program for (at least) 15 years of supply availability and are also part of our SafeAssure program for Functional Safety.

32-BIT MPC57xx MICROCONTROLLERS BUILT ON POWER ARCHITECTURE® TECHNOLOGY, SUPPORTS UP TO ASIL-D FUNCTIONAL SAFETY

Device	Core	Freq (MHz)	Flash (MB)	SRAM (KB)	D-Flash for Emulated EEPROM (KB)	Security	ADC	Serial Communication	FlexRay	DMA	PIT	Ethernet	Motor Control Peripherals	PWM	Other Peripherals	Debug	Operating Voltage	AEC-Q100 Temp Range	ISO 26262 Functional Safety	Packaging
MPC5777M	2x LS z7 1x z4	300 200	8	596	544	HSM	52-ch 16-bit 84-ch 12-bit	5x CAN 1 CAN FD 2x I ² C 8x SPI 6x SCI (LINFlex)	Yes	2x 64-ch	8	Yes	GTM 248-ch		CRC, SENT, Zipwire, PSIS, EBI	Nexus 3+ Aurora JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	416/512 TEPBGA
MPC5777C	2x LS z7	264 300	8	512	256	CSE	20-ch 16-bit 70-ch 12-bit	6x CAN 2x CAN FD 5x SPI 5x SCI (LINFlex)		2x 64-ch	4	Yes	eTPU 96-ch eMIOS 32-ch		CRC, SENT, Zipwire, PSIS, EBI	Nexus 3+ Aurora JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	416/516 MAPBGA
MPC5775E	2x LS z7	264	4	512	256	CSE	20-ch 16-bit 70-ch 12-bit	6x CAN 2x CAN FD 5x SPI 5x SCI (LINFlex)		2x 64-ch	4	Yes	eTPU 96-ch eMIOS 32-ch		CRC, SENT, EBI	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	416 MAPBGA
MPC5775B	2x LS z7	220	4	512	256	CSE	40-ch 12-bit	6x CAN 2x CAN FD 5x SPI 5x SCI (LINFlex)		2x 64-ch	4	Yes	eMIOS 32-ch		CRC, SENT, EBI	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	416 MAPBGA
MPC5746R	2x LS z4	200	4	256	256		48-ch 16-bit 96-ch 12-bit	4x CAN 7x SPI 6x SCI (LINFlex)		64-ch	8	Yes	eTPU 64-ch eMIOS 32-ch CTU		CRC, SENT, Zipwire	Nexus 3+ Aurora JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	176 LQFP 252 MAPBGA
MPC5745R	2x LS z4	200	3	192	256		48-ch 16-bit 96-ch 12-bit	4x CAN 7x SPI 6x SCI (LINFlex)		64-ch	8	Yes	eTPU 64-ch eMIOS 32-ch CTU		CRC, SENT, Zipwire	Nexus 3+ Aurora JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	176 LQFP 252 MAPBGA
MPC5743R	LS z4	200	2	128	256		48-ch 16-bit 96-ch 12-bit	4x CAN 6x SPI 5x SCI (LINFlex)		64-ch	8	Yes	eTPU 64-ch eMIOS 32-ch CTU		CRC, SENT, Zipwire	Nexus 3+ Aurora JTAG	3.3 V, 5 V	Grade 1	up to ASIL-D	144/176 LQFP
MPC5744P	LS z4	200	2.5	384	96		25-ch 12-bit	3x CAN 4x SPI 2x SCI (LINFlex)	Yes	32-ch	4	Yes	eTimer 18-ch CTU	24-ch	CRC, SENT, Zipwire	Nexus 3+ MDO and Aurora interface	3.3 V	Grade 1	up to ASIL-D	144 LQFP 257 MAPBGA
MPC5743P	LS z4	200	2	256	96		25-ch 12-bit	3x CAN 4x SPI 2x SCI (LINFlex)	Yes	32-ch	4	Yes	eTimer 18-ch CTU	24-ch	CRC, SENT, Zipwire	Nexus 3+ MDO and Aurora interface	3.3 V	Grade 1	up to ASIL-D	144 LQFP 257 MAPBGA
MPC5742P	LS z4	200	1.5	192	96		25-ch 12-bit	3x CAN 4x SPI 2x SCI (LINFlex)	Yes	32-ch	4	Yes	eTimer 18-ch CTU	24-ch	CRC, SENT, Zipwire	Nexus 3+ MDO and Aurora interface	3.3 V	Grade 1	up to ASIL-D	144 LQFP 257 MAPBGA
MPC5741P	LS z4	200	1	128	96		25-ch 12-bit	3x CAN 4x SPI 2x SCI (LINFlex)	Yes	32-ch	4	Yes	eTimer 18-ch CTU	24-ch	CRC, SENT, Zipwire	Nexus 3+ MDO and Aurora interface	3.3 V	Grade 1	up to ASIL-D	144 LQFP 257 MAPBGA
MPC5748G	2x z4 1x z2	160 80	6	768	192	HSM option	32-ch 12-bit 48-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+6x SPI 18x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 96-ch CTU		CRC, I ² S, USB, SDHC	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 256/324 MAPBGA
MPC5747G	2x z4 1x z2	160 80	4	768	192	HSM option	32-ch 12-bit 48-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+6x SPI 18x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 96-ch CTU		CRC, I ² S, USB, SDHC	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 256/324 MAPBGA
MPC5746G	2x z4 1x z2	160 80	3	768	192	HSM option	32-ch 12-bit 48-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+6x SPI 18x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 96-ch CTU		CRC, I ² S, USB, SDHC	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 256/324 MAPBGA
MPC5748C	1x z4 1x z2	160 80	6	768	128	HSM option	32-ch 12-bit 48-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+6x SPI 16x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 96-ch CTU		CRC, I ² S, USB, SDHC	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 256/324 MAPBGA
MPC5747C	1x z4 1x z2	160 80	4	512	128	HSM option	32-ch 12-bit 48-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+6x SPI 16x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 96-ch CTU		CRC, I ² S, USB, SDHC	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 256/324 MAPBGA
MPC5746C	1x z4 1x z2	160 80	3	384	128	HSM option	16-ch 12-bit 32-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+4x SPI 16x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA
MPC5745C	1x z4 1x z2	160 80	2	256	128	HSM option	16-ch 12-bit 32-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+4x SPI 16x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA
MPC5744C	1x z4 1x z2	160 80	1.5	192	128	HSM option	16-ch 12-bit 32-ch 10-bit	8x CAN 8x CAN FD 4x I ² C 4+4x SPI 16x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA
MPC5746B	1x z4	160	3	384	128	HSM option	16-ch 12-bit 32-ch 10-bit	6x CAN 6x CAN FD 4x I ² C 4+4x SPI 12x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA
MPC5745B	1x z4	160	2	256	128	HSM option	16-ch 12-bit 32-ch 10-bit	6x CAN 6x CAN FD 4x I ² C 4+4x SPI 12x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA
MPC5744B	1x z4	160	1.5	192	128	HSM option	16-ch 12-bit 32-ch 10-bit	6x CAN 6x CAN FD 4x I ² C 4+4x SPI 12x SCI (LINFlex)	Yes	32-ch	16	Yes	eMIOS 64-ch CTU		CRC, I ² S	Nexus 3+ JTAG	3.3 V, 5 V	Grade 1 Grade 2 Grade 3	up to ASIL-B	176 LQFP 100/252 MAPBGA

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16-BIT MAGNIV® INTEGRATED SOLUTIONS (MCU + VREG + CAN PHY/LIN PHY/GATE DRIVER UNIT), SUPPORTS UP TO ASIL-B FUNCTIONAL SAFETY

Device	Core	Freq (MHz)	Flash (MB)	RAM (KB)	EEPROM	ECC	ADC	Serial Communication	KWU	Ext Supply	HV Input	Vreg	Motor	PWM	Timer	Other Analog	Operating Voltage	AEC-Q100 Temp Range	ISO 26262 Functional Safety	Packaging
S12ZVCA	S12	32	64 – 192	4 – 12	1 – 2 KB	Flash + RAM	10 – 16-ch 12-bit	1x CAN 1x CAN PHY 1x I ² C 1+2x SPI 2x SCI	34	5 V/20 mA + CAN supply	2-ch HVI VSUP Sense	2		8-ch x 8-bit or 4-ch x 16-bit	8+4-ch 16-bit	4-ch NGPIO (5 V/25 mA) + 2-ch ACMP + DAC/ OpAmp	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2 Grade 3		48 LQFP 64 LQFP-EP
S12ZVC	S12	32	64 – 192	4 – 12	1 – 2 KB	Flash + RAM	10 – 16-ch 10-bit	1x CAN 1x CAN PHY 1x I ² C 1+2x SPI 2x SCI	34	5 V/20 mA + CAN supply	2-ch HVI VSUP Sense	2		8-ch x 8-bit or 4-ch x 16-bit	8+4-ch 16-bit	4-ch NGPIO (5 V/25 mA)	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2 Grade 3		48 LQFP 64 LQFP-EP
S12ZVLA	S12	32	64 – 128	4 – 8	1 – 2 KB	Flash + RAM	10 – 16-ch 12-bit	1x CAN 1x LIN PHY 1x I ² C 1x SPI 2x SCI	23	5 V/20 mA	1-ch HVI VSUP Sense	1		8-ch x 8-bit or 8-ch x 16-bit	6+2-ch 16-bit	3-ch NGPIO (5 V/25 mA) + 1-ch ACMP + DAC/ OpAmp + PGA	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2 Grade 3		32/48 LQFP 32 QFN
S12ZVL	S12	32	8 – 128	1 – 8	0.1 – 2 KB	Flash + RAM	10 – 16-ch 10-bit	1x CAN FD 1x LIN PHY 1x I ² C 1x SPI 2x SCI	23	5 V/20 mA	1-ch HVI VSUP Sense	1		8-ch x 8-bit or 4-ch x 16-bit	6+2-ch 16-bit	3-ch NGPIO (5 V/25 mA)	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2 Grade 3		2/48 LQFP 32 QFN
S12ZVLS	S12	32	16 – 32	1	129 KB	Flash + RAM	6-ch 10-bit	1x LIN PHY 1x I ² C 1x SPI 2x SCI	15	5 V/20 mA	1-ch HVI VSUP Sense	1		8-ch x 8-bit or 4-ch x 16-bit	6+2-ch 16-bit	3-ch NGPIO (5 V/25 mA)	5.5 V – 18 V (max 40 V)	Grade 1 Grade 2 Grade 3		32 QFN
S12ZVMC256	S12	50	256	32	1 KB	Flash + RAM	8+8-ch 12-bit	1x CAN 1x CAN PHY 1x SPI 2x SCI	18	5 V/20 mA + CAN supply + 2x Ext	1-ch HVI VSUP Sense	4	PMSM/BLDC/ SRM/DC	6-ch x 15-bit 8-ch x 8-bit or 4-ch x 16-bit	4+2-ch 16-bit	6-ch Gate Drive Unit + 2x Current Sensing	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		80 LQFP-EP
S12ZVML	S12	50	32 – 128	4 – 8	0.1 – 0.5 KB	Flash + RAM	4+5-ch 12-bit	1x CAN FD 1x LIN PHY 1x SPI 1-2x SCI	18	5 V/20 mA	VSUP Sense	1	PMSM/BLDC/DC	6-ch x 15-bit	4-ch 16-bit	6-ch Gate Drive Unit + 2x Current Sensing	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		48/64 LQFP-EP
S12ZVMC	S12	50	64 – 128	4 – 8	512 B	Flash + RAM	4+5-ch 12-bit	1x CAN 1x SPI 2x SCI	18	5 V/20 mA + CAN supply	VSUP Sense	2	PMSM/BLDC/DC	6-ch x 15-bit	4-ch 16-bit	6-ch Gate Drive Unit + 2x Current Sensing	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		64 LQFP-EP
S12ZVM	S12	50	16 – 32	2 – 4	128 B	Flash + RAM	4+5-ch 12-bit	1x SPI 1-2x SCI	18	5 V/20 mA	VSUP Sense	1	PMSM/BLDC/DC	6-ch x 15-bit	4-ch 16-bit	6-ch Gate Drive Unit + 2x Current Sensing + HV-PHY (PWM)	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		48/64 LQFP-EP
S12ZVMB	S12	32	48 – 64	4	512 B	Flash + RAM	5 – 9-ch 10-bit	1x LIN PHY 1x SPI 2x SCI	17	5 V/20 mA	VSUP Sense	1	DC (bidirectional, H-Bridge)	6-ch x 15-bit	4+4-ch 16-bit	4-ch Gate Drive Unit + Current Sensing	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		48/64 LQFP
S12ZVMA	S12	32	16 – 32	1 – 2	128 B	Flash	8-ch 10-bit	1x LIN PHY 1x SPI 1-1 SCI	17	5 V/20 mA	VSUP Sense	1	DC (unidirectional, H-Bridge)	6-ch x 15-bit	2+2-ch 16-bit	2-ch Gate Drive Unit + Current Sensing + NGPIO (5 V/25 mA)	5.5 V – 18 V (max 40 V)	Grade 0 Grade 1 Grade 2		32/48 LQFP
S12ZVR	S12	25	16 – 64	2	0.1 – 0.5 KB	Flash	2 – 6-ch 10-bit	1x LIN PHY 1x SPI 1-2x SCI	16	5 V/20 mA	4-ch HVI VBAT Sense VSUP Sense	1	DC (bidirectional, relay)	8-ch x 8-bit or 4-ch x 16-bit	4-ch 16-bit	1 – 2ch. high-side	5.5 V – 18 V (max 40 V)	Grade 1 Grade 2 Grade 3		32/48 LQFP
S12ZVRP	S12	25	48 – 64	6	2 – 4 KB	Flash + RAM	6-ch 10-bit	1-2x SCI	16	5 V/20 mA	4-ch HVI VBAT Sense VSUP Sense	1	DC (bidirectional, relay)	8-ch x 8-bit or 4-ch x 16-bit	2+2-ch 16-bit	1-ch general low-side + 2-ch high-side	5.5 V – 18 V (max 40 V)	Grade 1 Grade 2 Grade 3		32/48 LQFP
S12ZVH	S12	32	64 – 128	4 – 8	4 KB	Flash + RAM	8-ch 10-bit	1x CAN 1x CAN PHY 1x SPI 2x SCI	24		VBAT Sense VSUP Sense	2	4 Stepper	8-ch x 8-bit or 4-ch x 16-bit	8+8-ch 16-bit	40 x 4 LCD + Simple Sound Generator + RTC	5.5 V – 18 V (max 40 V)	Grade 2 Grade 3		100/144 LQFP
S12ZVHY	S12	32	32 – 64	2 – 4	2 KB	Flash + RAM	8-ch 10-bit	1x CAN 1x SPI 2x SCI	24		VBAT Sense VSUP Sense	1	2 Stepper	8-ch x 8-bit or 4-ch x 16-bit	8+8-ch 16-bit	40 x 4 LCD + Simple Sound Generator + RTC	5.5 V – 18 V (max 40 V)	Grade 2 Grade 3		100/144 LQFP
S12ZVHL	S12	32	64	4	2 KB	Flash + RAM	8-ch 10-bit	1x CAN 1x CAN PHY 1x SPI 2x SCI	24		VBAT Sense VSUP Sense	1	2 Stepper	8-ch x 8-bit or 4-ch x 16-bit	8+8-ch 16-bit	40 x 4 LCD + Simple Sound Generator + RTC	5.5 V – 18 V (max 40 V)	Grade 2 Grade 3		100/144 LQFP
S12ZVFP	S12	32	64	4	2 KB	Flash + RAM	8-ch 10-bit	1x CAN 1x CAN PHY 1x SPI 2x SCI	24		VBAT Sense VSUP Sense	1		8-ch x 8-bit or 4-ch x 16-bit	8+8-ch 16-bit	40 X 4 LCD + Simple Sound Generator + RTC	5.5 V – 18 V (max 40 V)	Grade 2 Grade 3		100/144 LQFP

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