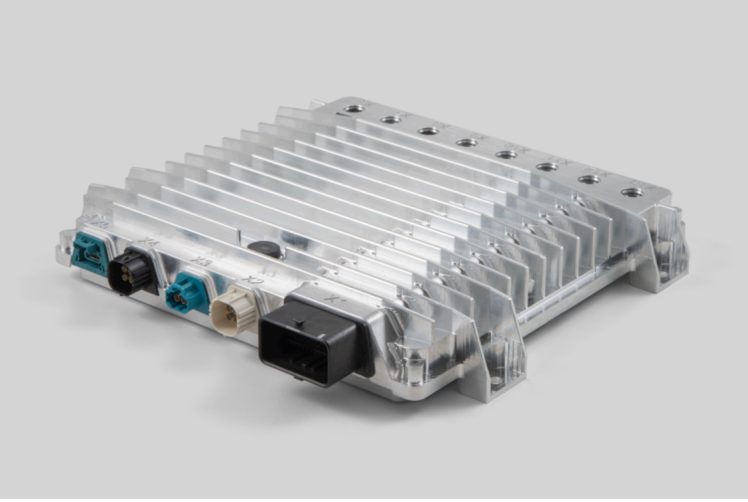
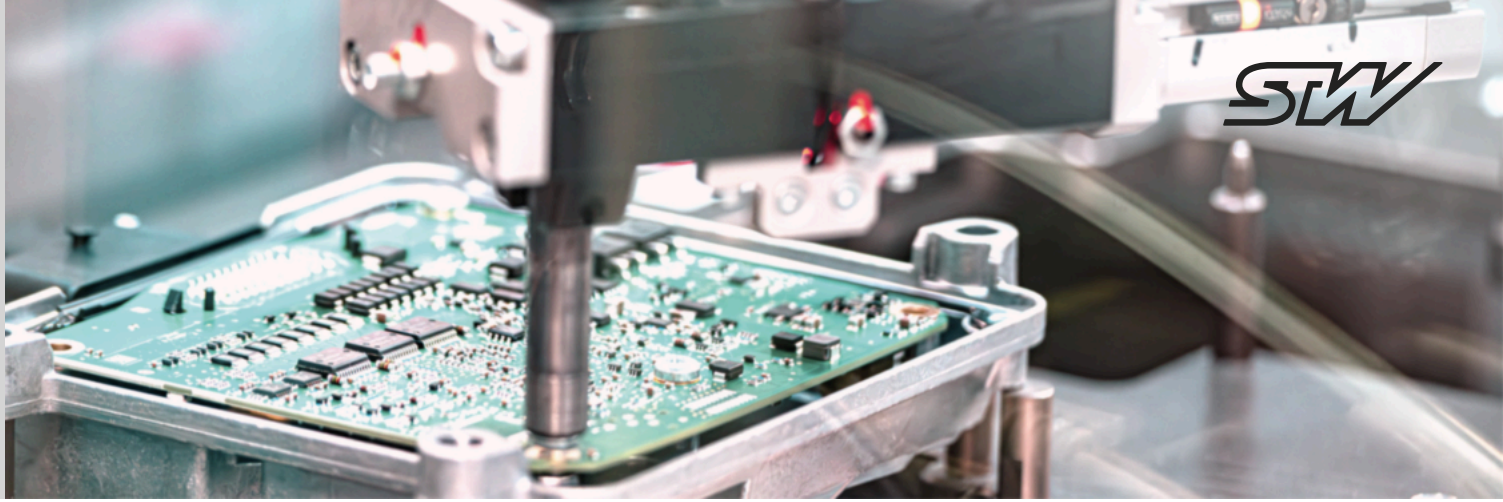




HPX.ai-vision

High performance platform

KEY FEATURES

- Robust Performance Computing units for harsh mobile applications with a scalable hardware and software platform
- Supports AI, Video Processing, and Model-Based Design (Matlab/Simulink)
- Embedded Linux, Docker, and ROS2 support
- Flexible programming and hardware acceleration with Python, C, and C++
- Safety compliant: SIL2 (IEC 61508:2010), PL d (EN ISO 13849-1:2015), ASIL B (ISO 26262) SF)
- Best performance/watt ratio without active cooling

SF) Scheduled feature

TECHNICAL DATA

- Multiprocessor System
- AMD Zynq™ UltraScale+™ MPSoC
- Optional artificial intelligence processor
- 5 GB SDRAM DDR4, up to 80 GB eMMC, 2 Mbit FRAM
- 6x CAN, 3x RS232, up to 10x Ethernet interfaces, up to 8x GMSL2, 1x USB, 1x DisplayPort
- 4x inputs, 2x outputs
- Sensor Supply, PoC, PoDL

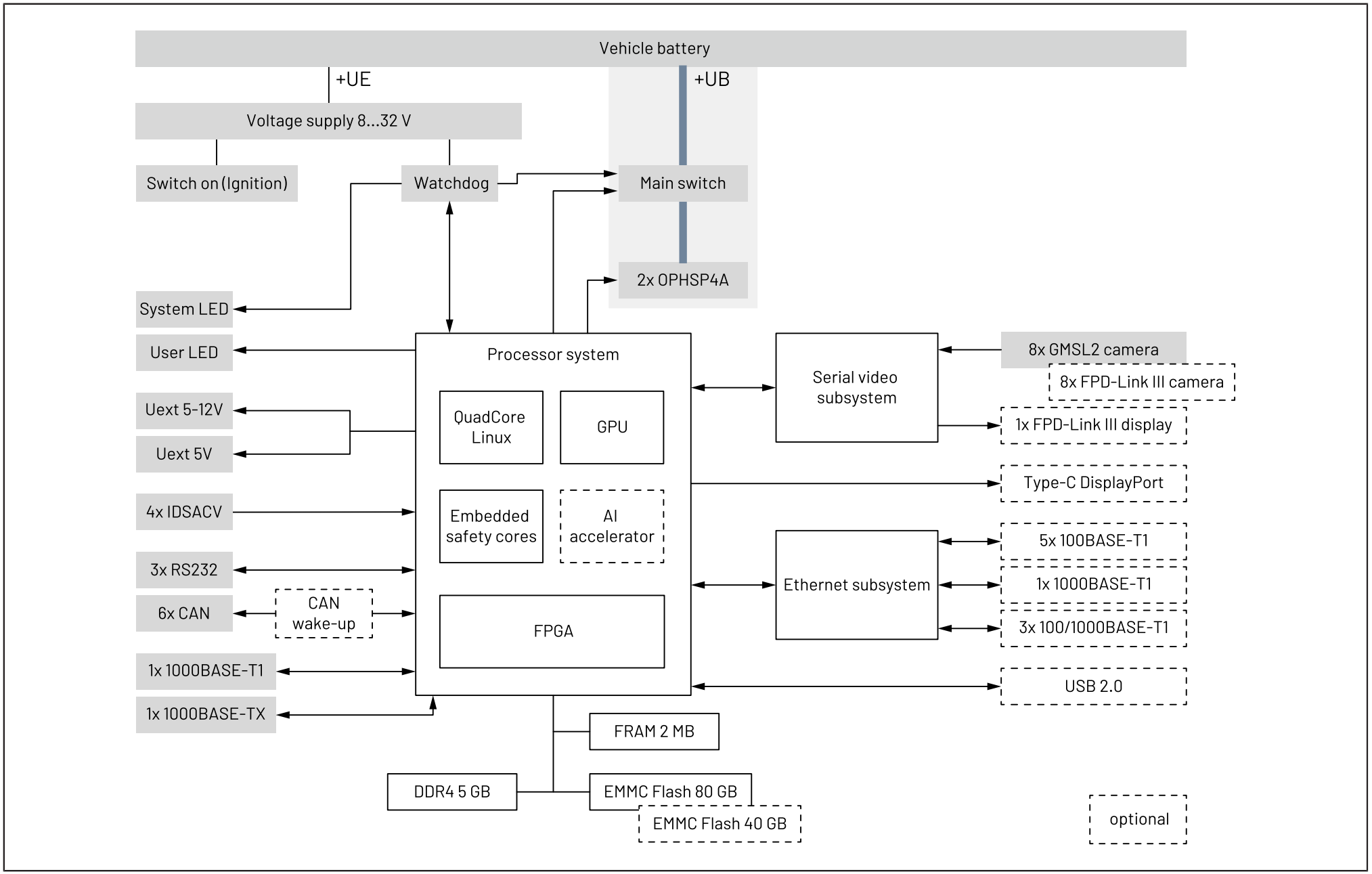
ACCESSORIES

- Software Development Environment
- Development cable set (StarterKit in preparation)

Sensor-Technik Wiedemann GmbH

Am Bärenwald 6
87600 Kaufbeuren
Germany
+49 8341 9505-0
info.stw@wiedemann-group.com
www.stw-mm.com

BLOCK DIAGRAM



Variants

Variant features of the HPX.ai-vision

Feature	Component	Variant 1 SV)	Variant 2 SV)	Variant 3 SV)	Variant 4	Variant 14 DEV)	Variant 15 DEV)
HW Acceleration	AI accelerator	–	1	1	1	1	1
Video In	FPD-Link III SF)	–	–	8	–	–	–
	GMSL2	–	–	–	8	8	8
	PoC	–	–	30W	30W	30W	30W
Video Out	FPD-Link III SF)	–	–	2	2	2	2
	Display Port, C-KLIC MD	–	–	–	–	1	1
Debugging	JTAG	–	–	–	–	1	–
USB	USB 2.0	1	1	1	1	1	1
Ethernet	100/1000BASE-TX	1	1	1	1	1	1
	100/1000BASE-T1(SPE)	–	3	3	3	3	3
	1000BASE-T1(SPE)	–	1	1	1	1	1
	100BASE-T1(SPE)	5	5	5	5	5	5
	PoDL	–	2x10W	2x10W	2x10W	2x10W	2x10W

SV) Scheduled variant

SF) Scheduled feature

DEV) For development

TECHNICAL DATA

Processor and memory

Type	Properties	Features
AMD Zynq™ UltraScale+™ MPSoC	APU, 64-bit Quad-core Arm Cortex- A53 up to 1.2 GHz RPU, 32-bit Dual-Core Arm Cortex- R5 up to 500 MHz GPU Arm Mali-400 MP2 up to 600 MHz VCU H.264/H.265 PL Programmable Logic	
Aurix Multicore	32-bit up to 300 MHz	
Hailo-8 AI accelerator	MCU, 32-bit Arm Cortex-M4 up to 200 MHz NPU up to 26 TOPS	
eMMC Flash	80 GB (optional 40 GB)	External
SDRAM	5 GB DDR4, 64 bit	External
F-RAM	2 Mbit (256 x 8)	External

Communication interfaces

Type	Maximum quantity	Configuration
CAN	6	CAN 2.0B, baud rate from 100 kbit/s to 1 Mbit/s
Ethernet	1	100/1000BASE-TX (100/1000 Mbit/s Ethernet)
	5	100BASE-T1 (100 Mbit/s Single Pair Ethernet)
	3	100/1000BASE-T1 (100/1000 Mbit/s Single Pair Ethernet)
	1	1000BASE-T1 (1 Gbit/s Single Pair Ethernet)
RS232	3	
USB	1	USB 2.0

TECHNICAL DATA

Inputs

Component	Maximum quantity	Possible configuration	Measurement
Multifunctional input IDSACV	4	Programmable analog voltage range	0 ... 35 V 0 ... 12 V 0 ... 5 V
		Analog current	0 ... 24 mA
		Programmable pull-up resistor	1.1 kΩ to +8.5 V 10 kΩ to +5 V
		Programmable pull-down resistor	1 kΩ to GND
		NAMUR sensor	NAMUR sensor compatible
		Digital (voltage mode)	Active high Achtive low
		Frequency	0.6 Hz ... 20 kHz
		Incremental encoder interface	Change of position or angular change
		SENT	Full SENT interface at voltage measuring range 0 ... 5 V
Video In	8	GMSL2	

TECHNICAL DATA

Outputs

Component	Maximum quantity	Possible configuration	Range	Characteristics	Feature
Digital/PWM high side output OPHSP4A	2	PWM	0 ... 4 A	0 ... 100 % Duty cycle resolution < 0.1 % PWM frequency 20 ... 500 Hz	• High side switch • Precise current measurement, accuracy is ±2.3 % ±70 mA • Supports current control mode • Digital feedback, open load detection in OFF state • Automated shutdown on overcurrent > 7.5 A ±1.5 A • Combine several outputs for parallel operation
		Digital	-	ON/OFF	
Video Out	2	FPD-Link III SF)			
	1	DisplayPort, DP 1.2a			

SF) Scheduled feature

Mechanical data

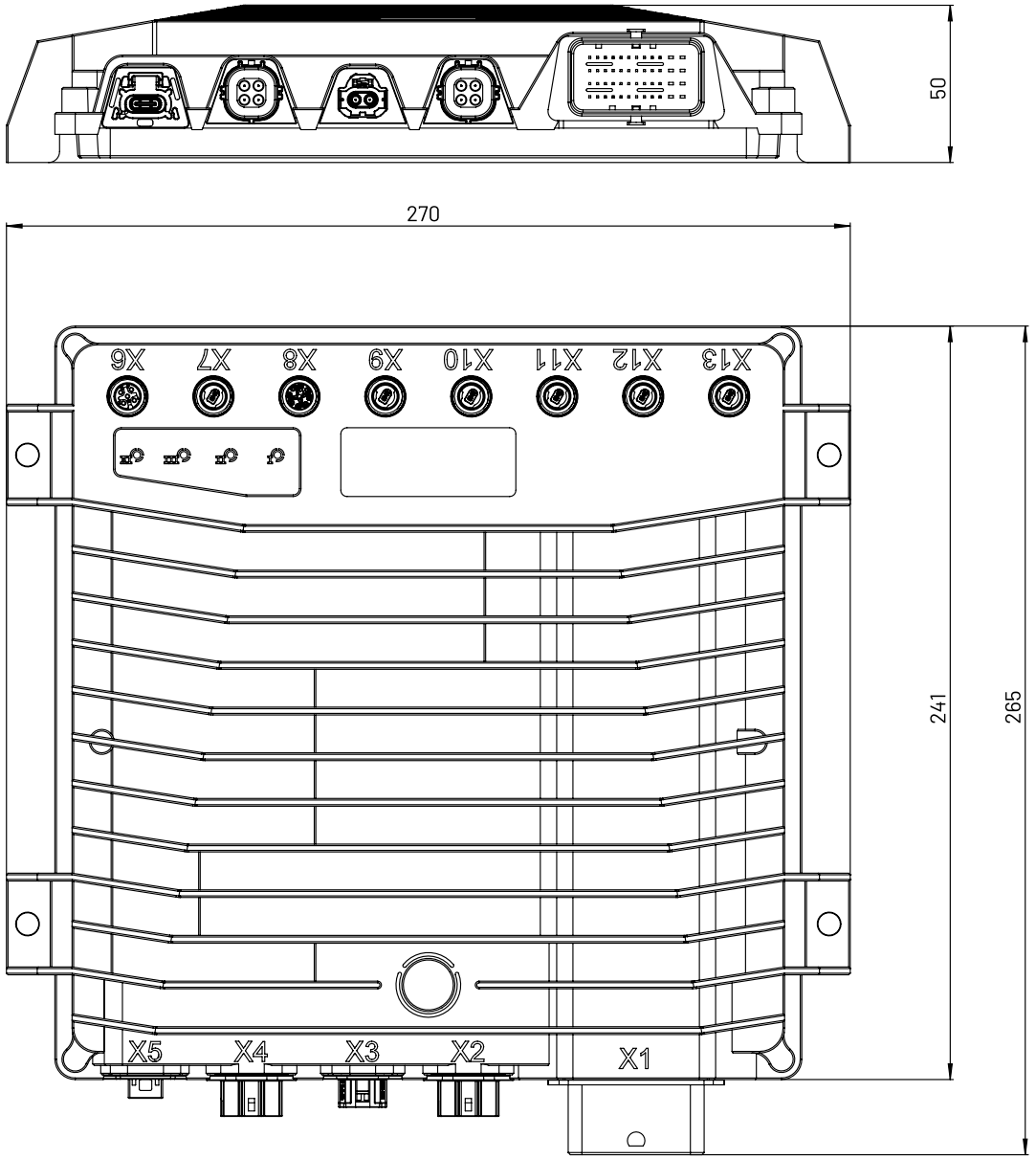
Component	Description	Value
Connectors	Main connector Video in Video out Ethernet USB 2.0	Automotive 48 pins Molex CMC High-Speed FAKRA-Mini HFM™ Rosenberger C-KLIC MD M12 SPE Phoenix Contact M12 5pol Phoenix Contact, A-Type
Indicators	2x 2 LED, dual color (red/green or mixed colors) System LED and User LED	
Housing	Aluminum	GORE-TEX™ membrane for pressure equalization
Degree of Protection		IP6k7
Operating temperature		-40 ... +85 °C (-40 ... +185 °F)

TECHNICAL DATA

Power supply

Component	Description	Range	
		Minimum value	Maximum value
DC voltage supply	Voltage at +UE ECU supply and +UB power supply	8 V DC	32 V DC

TECHNICAL DRAWING



QUALIFICATION

Compliance Information

Standard	Description	Parameter
ISO/IEC 17050-1 REGULATION (EC) No 765/2008	CE Conformity	
2011/65/EU 2015/863/EU	RoHS	Restriction of Hazardous Substances
2006/42/EC	Machinery directive	