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Robotino®

Mobile Robotics Platform
for Research and Education

DC-ER / Dirk Pensky

Motivation: Strong demand for mobile robotics applications

Sales 2011	**15 000 units**	**2 500 000 units**
Sales 2012	**16 000 units**	**3 000 000 units**
Sales Forecast 2013-2016	**94 000 units**	**22 000 000 units**

source: IFR 2013

Mobile Robotics

Professional Applications

- Field Robots
- Logistic
- Cleaning
- Medical
- Inspection
- Defence
- Construction
- Underwater

Personal Applications

- Handicap Assistance
- Entertainment
- Domestic Tasks
- Vacuum Cleaning
- Floor Wiping
- Window Cleaning
- Lawn Mowing

Motivation: Supporting research and education in mobile robotics

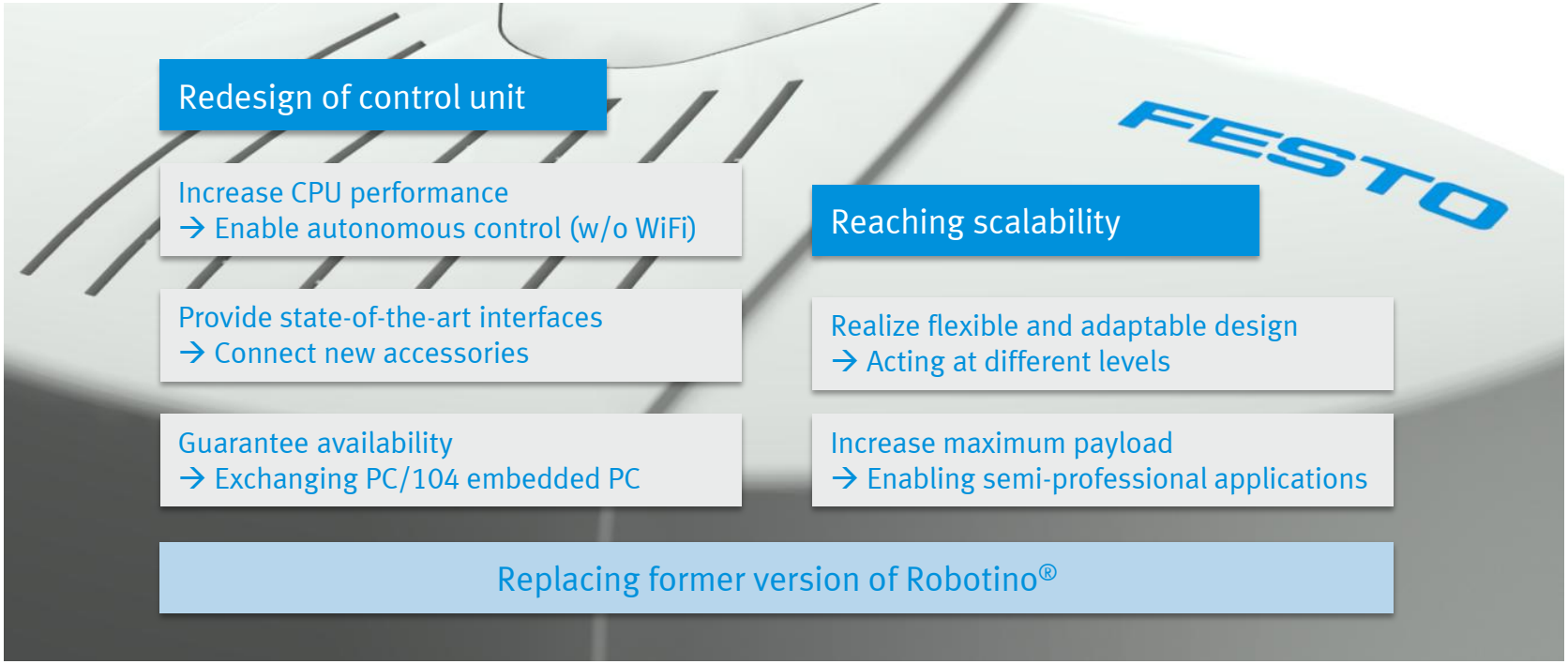
Research Areas

- Navigation Technologies
- Machine Learning
- Multi-Sensor Data Fusion
- Autonomous Systems
- Artificial Intelligence
- Co-Operative Robot Systems
- Mobile Manipulation
- Service Robotics Applications

Fields of Knowledge

- Drive Technology
- Motor Control
- Sensor Technology
- Image Processing
- Microcontroller Programming
- Service Robotics
- Automated Guided Vehicles
- Production Logistics

Why we developed the New Generation of Robotino®?



Redesign of control unit

- Increase CPU performance
  → Enable autonomous control (w/o WiFi)
- Provide state-of-the-art interfaces
  → Connect new accessories
- Guarantee availability
  → Exchanging PC/104 embedded PC

Reaching scalability

- Realize flexible and adaptable design
  → Acting at different levels
- Increase maximum payload
  → Enabling semi-professional applications

Replacing former version of Robotino®

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Extremely powerful: the new computational performance

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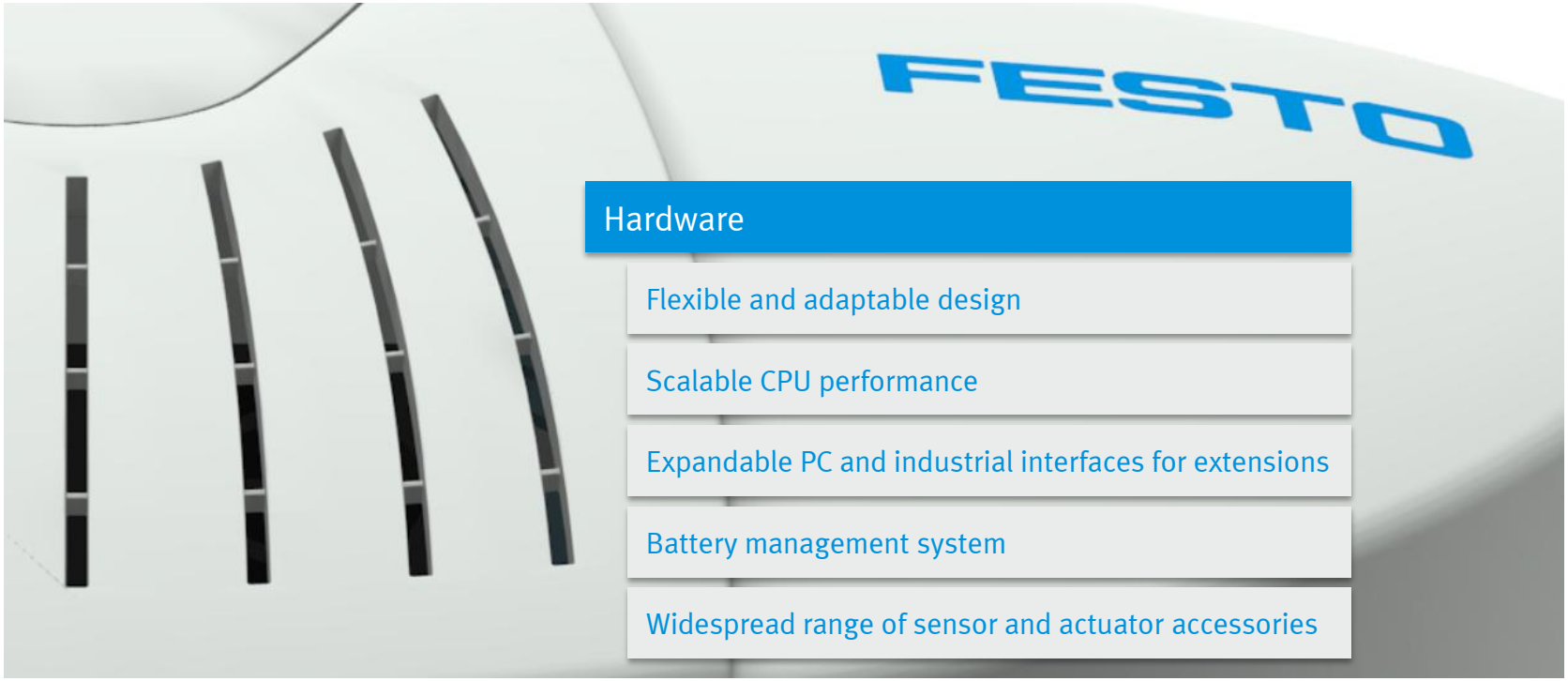
More interfaces than ever before

Highlights



Hardware

- Flexible and adaptable design
- Scalable CPU performance
- Expandable PC and industrial interfaces for extensions
- Battery management system
- Widespread range of sensor and actuator accessories

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Flexible, adaptable mechanical design






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At eye level with MPS®

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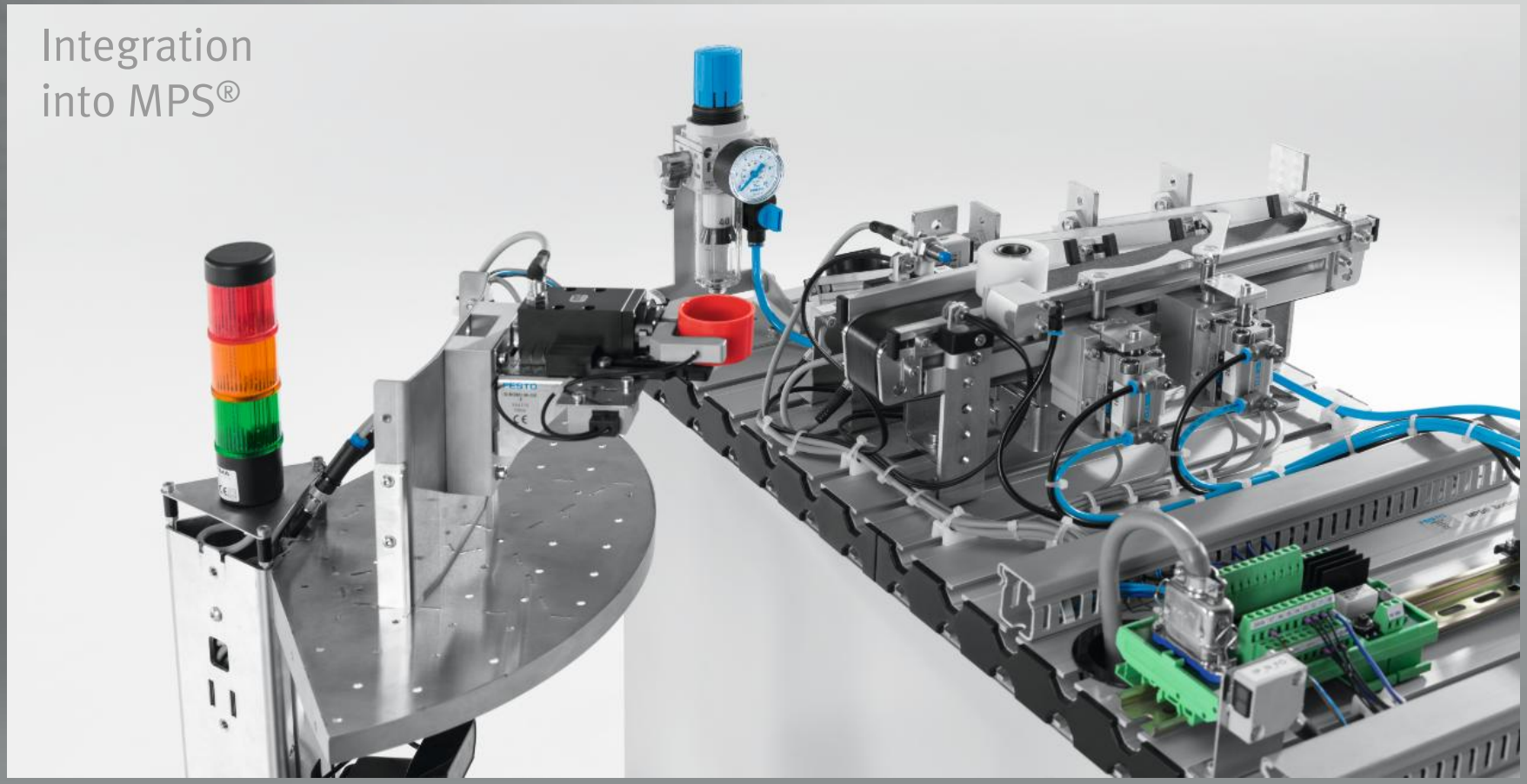
Integration into MPS®



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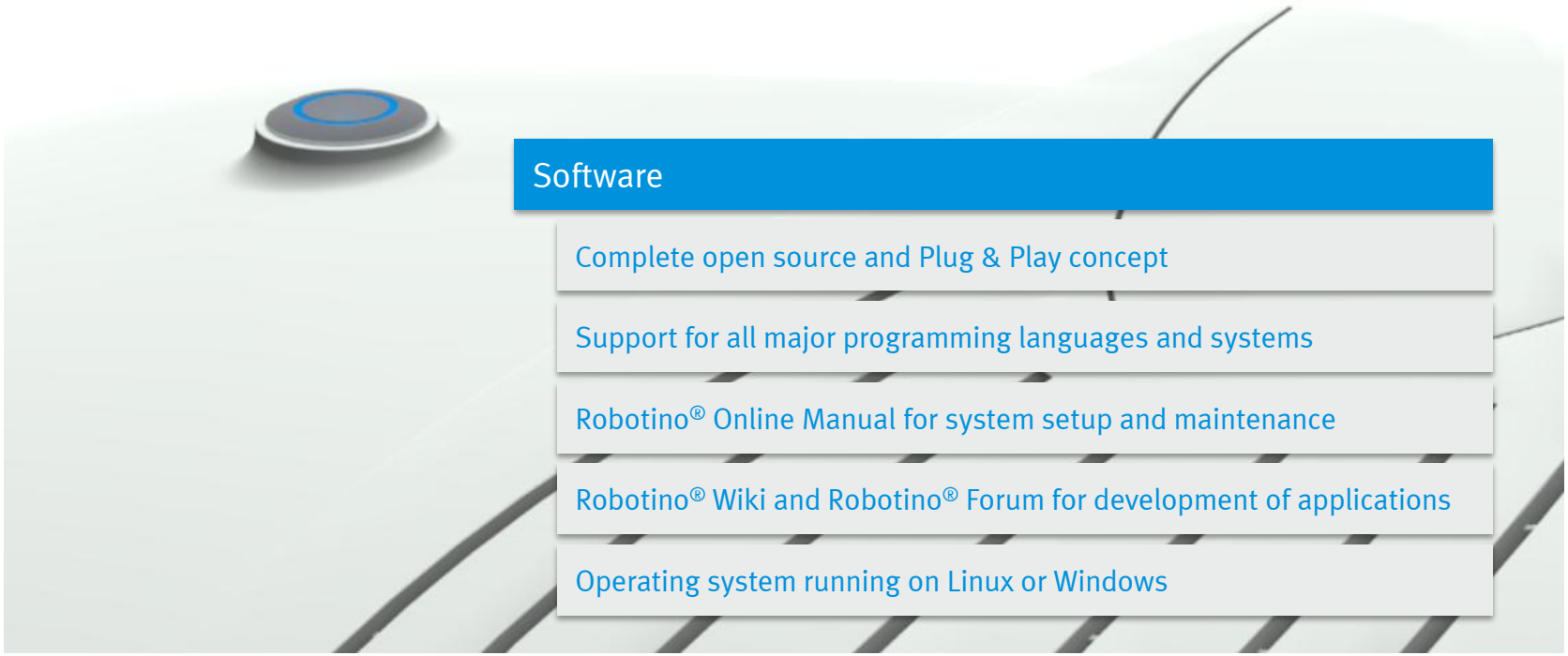
Maximum payload larger than own weight

Highlights



Software

- Complete open source and Plug & Play concept
- Support for all major programming languages and systems
- Robotino® Online Manual for system setup and maintenance
- Robotino® Wiki and Robotino® Forum for development of applications
- Operating system running on Linux or Windows

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Complete Open Source

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Plug and Play

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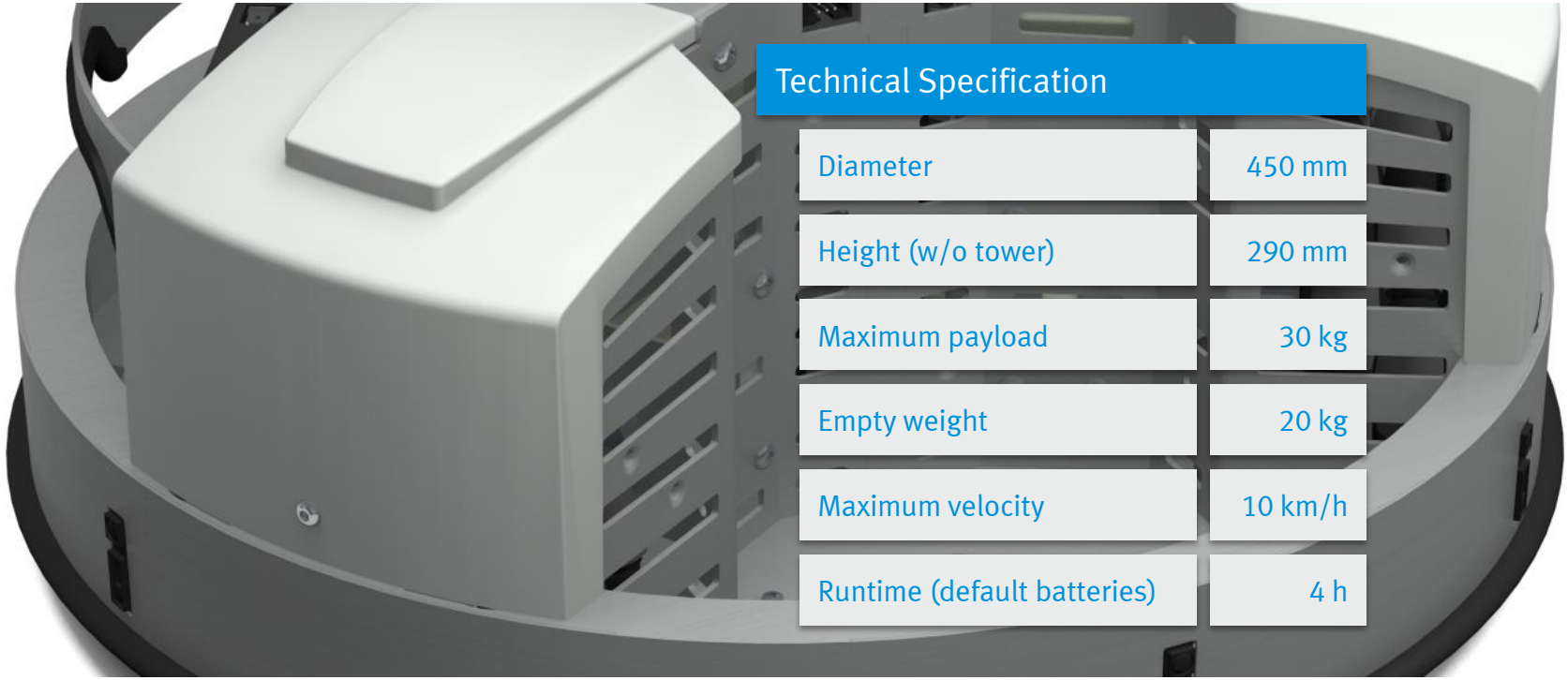
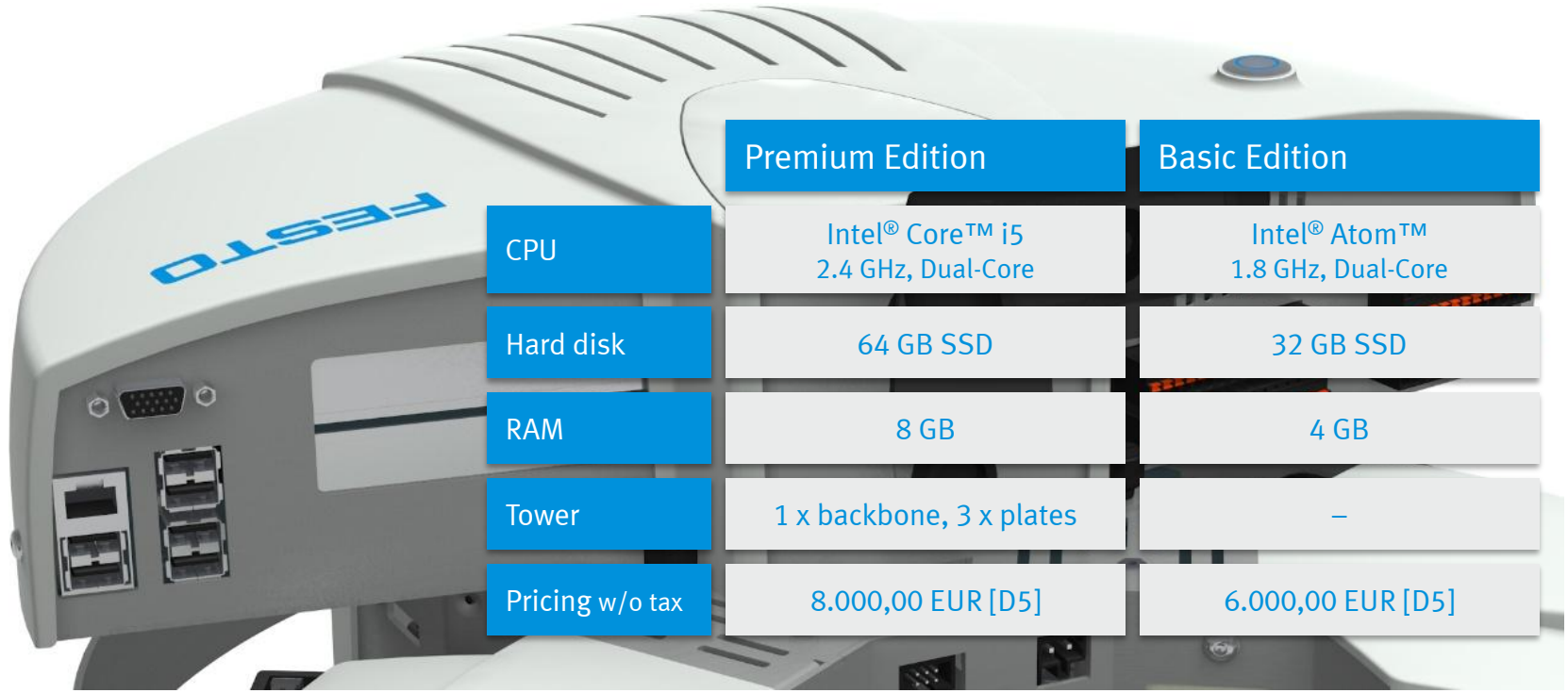
Highlights



Technical Specification	
Diameter	450 mm
Height (w/o tower)	290 mm
Maximum payload	30 kg
Empty weight	20 kg
Maximum velocity	10 km/h
Runtime (default batteries)	4 h

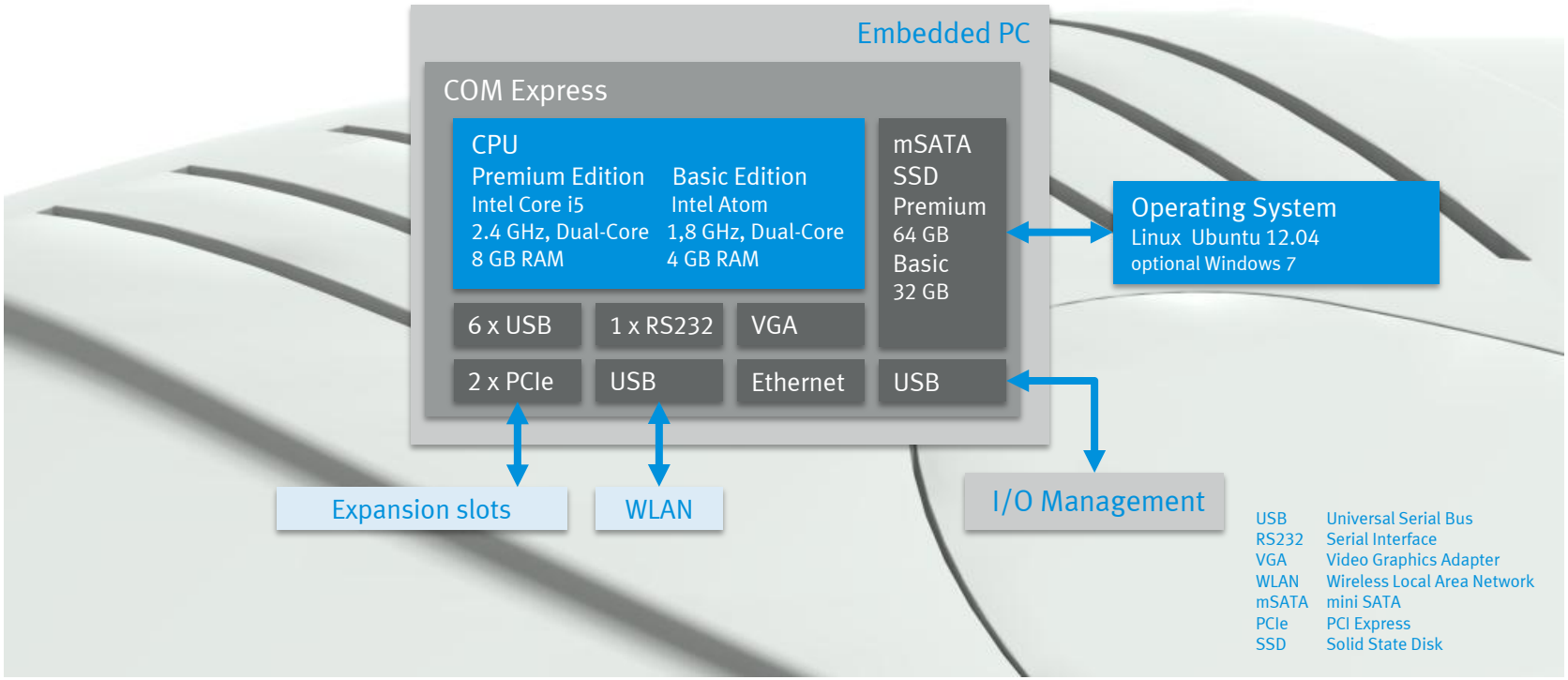
Robotino®

Featuring Premium & Basic Edition



	Premium Edition	Basic Edition
CPU	Intel® Core™ i5 2.4 GHz, Dual-Core	Intel® Atom™ 1.8 GHz, Dual-Core
Hard disk	64 GB SSD	32 GB SSD
RAM	8 GB	4 GB
Tower	1 x backbone, 3 x plates	–
Pricing w/o tax	8.000,00 EUR [D5]	6.000,00 EUR [D5]

Embedded PC inside



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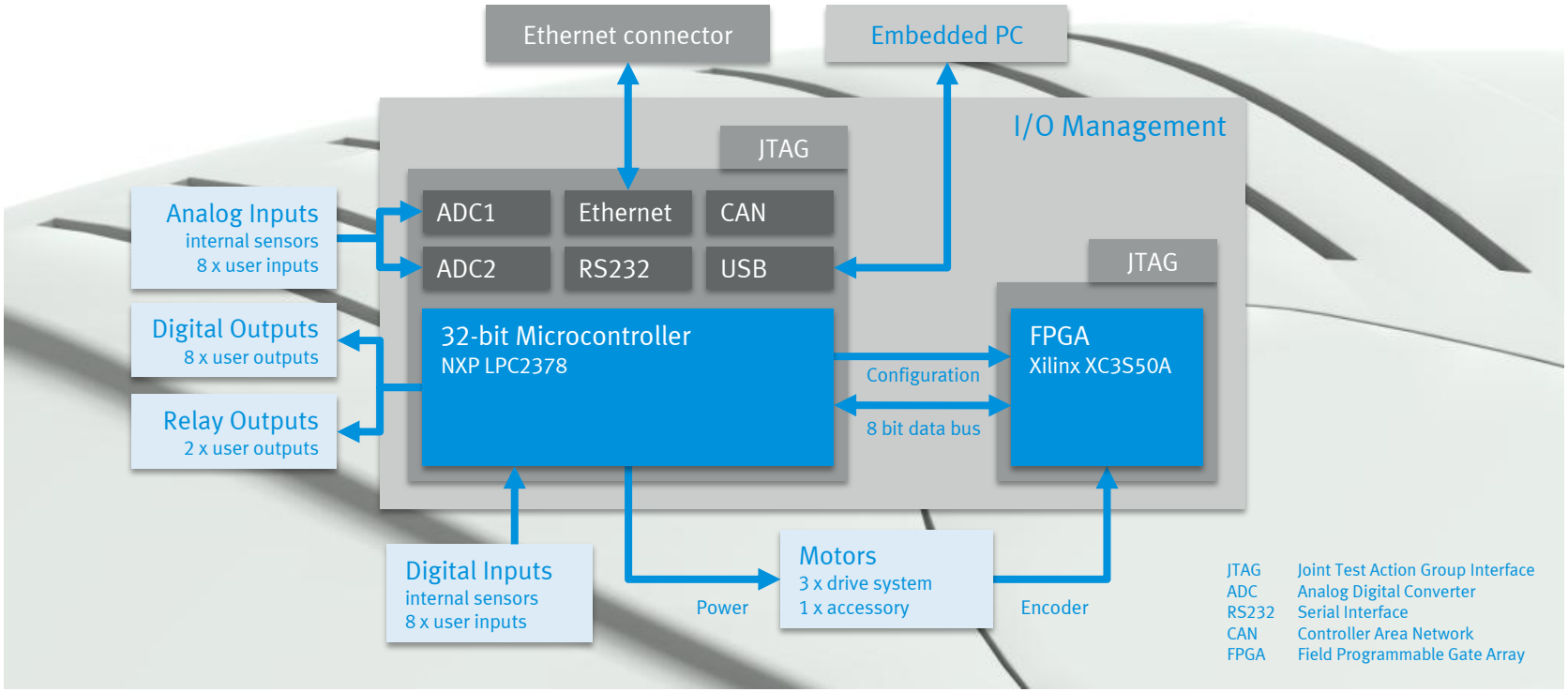
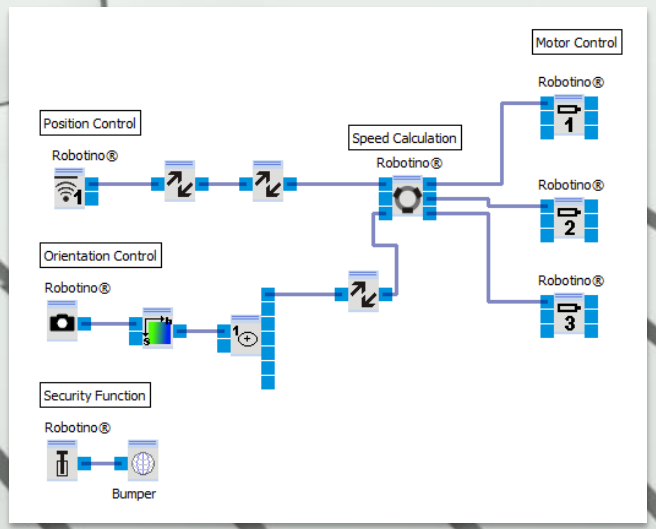
Enhanced I/O Management



Programming



Running Robotino®

- Robotino® View
- C++, JAVA, .Net
- LabVIEW, MATLAB/Simulink
- ROS (Robot Operating System)
- Microsoft Robotics Developer Studio

Teachware

Robotino® Workbook

- Instructions on how to use Robotino® during training
- Description of project exercises with worksheets
- Theory section & sample solutions
- Exercises allocated according to topic
- CD-ROM with programs for the project exercises

Support

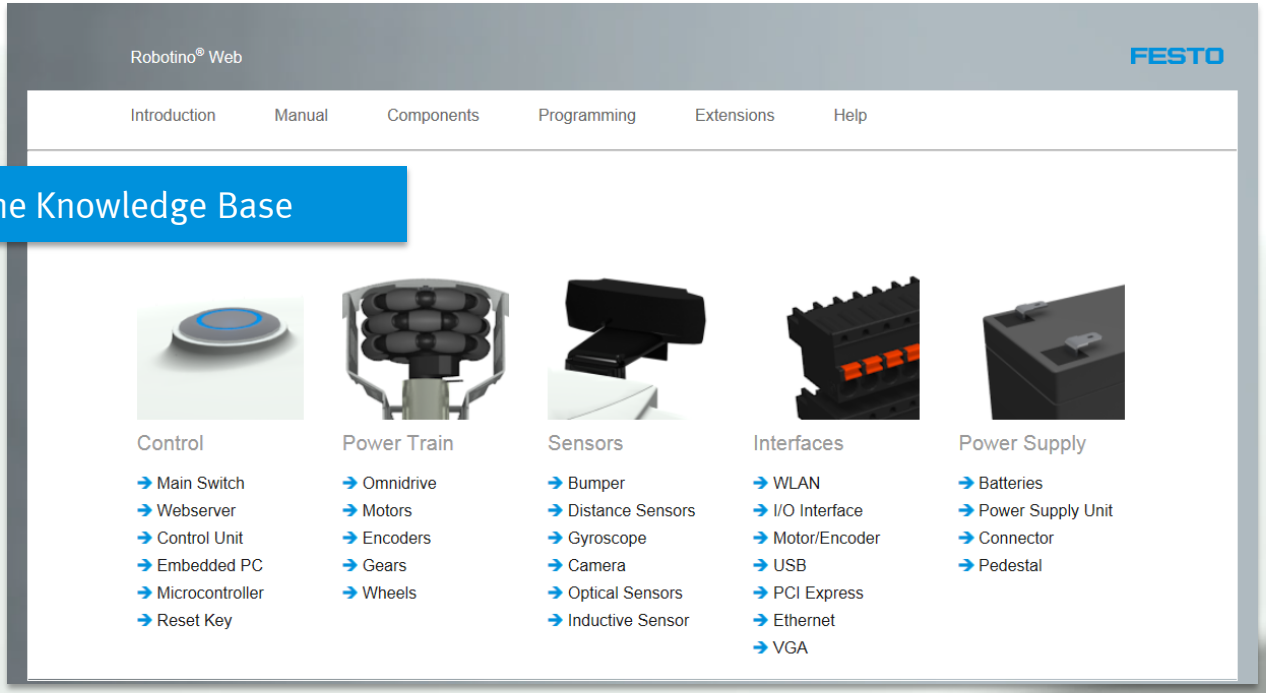
Robotino® Web – The Knowledge Base

- Instructions on system setup & operating
- Details on components and extensions
- Programming getting started
- Links to Robotino® Wiki and Robotino® Forum
- Installed on Robotino® and in the Internet

Support

Robotino® Web – The Knowledge Base

- ‹Link to come›
- Robotino® Wiki
- Robotino® Forum



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Support

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