Tattile
Custom Vision Solutions

INDUSTRIAL
DIVISION

Tattile
Custom Vision Solutions

Embedded vision systems and custom made software for industrial applications

member of: aia advancing VISION+IMAGING

Since Tattile establishment in 1988 we have been developing and producing Vision Systems, used to control quality on production plants in several sectors; such as pharmaceutical, packaging, semiconductors, printing, ceramics, food & beverage, automotive...

A high-tech company with a strong international outlook. We have always distinguished ourselves, because of our finest innovation capacity, the collaborative spirit that animates the entire organization.

Today Tattile is a part of the LakeSight Tecnologies a European platform comprised of smaller synergic players that can share sales channels, management resources and investment programs. Lakesight's end goal is to create a unique machine vision player with global ambitions.

Our ambition: We enable our customers to fully automate processes by providing vision solutions for inspections, measurements, verifications, recognition, process control and analyzes of color, shape, text and material structure to automatically improve their quality, productivity, reliability, traceability, big data collection and provide self learning systems.

Thus we help reducing pollution and the consumption of resources.

Our differentiators: We provide innovative high performance technologies for imaging systems to realize the best fit and highest value add for our customers applications.

LAKESIGHT
TECHNOLOGIES

www.lakesighttechnologies.com

In Tattile, Human Resources are the heart of innovation and cutting-edge technology

Human resources

Tattile's Team is made of dynamic and motivated young people (mean age 36 years old).

This is the "magic ingredient" that has given value and momentum to a company that has historically based its success on professional excellence, making continuous technological innovation a core value, always offered to its customers.

Tattile devotes a consistent part of its budget to vocational and humanist training for its managers and employees, in order to develop a team capable of supporting the constant challenges and ambitious growth goals.

R&D

Synergy and innovation for cutting-edge vision systems

R&D

The area of Research and Development we have in Tattile employs a team of over thirty engineers with expertise in hardware-software design and in optics and mechanical integration.

Thanks to the synergy between these skills, to constant attention, to innovation and to dedicated and active collaboration with leading European universities, we are able to develop cutting-edge vision systems.

Powerful and reliable hardware, easy to use software, maximum integration and flexibility are the strengths of our systems; products designed for severe settings such as the industrial environment, railway and outdoor installations, typical of ITS (Intelligent Transportation Solutions) systems.

The experience of Tattile R&D team enables us to collect new challenges, ensuring customer the safety of a technological partner, which is able to meet the most demanding needs in the field of machine vision systems.
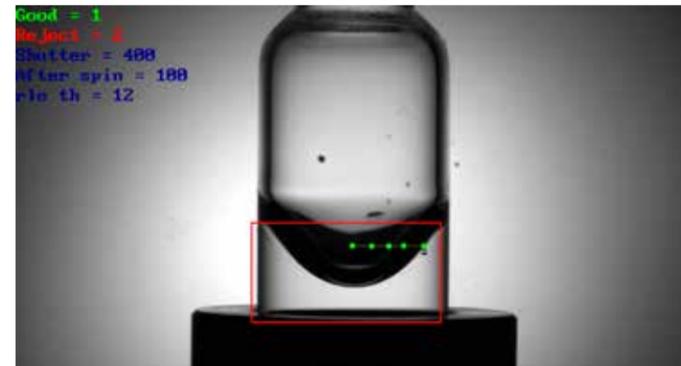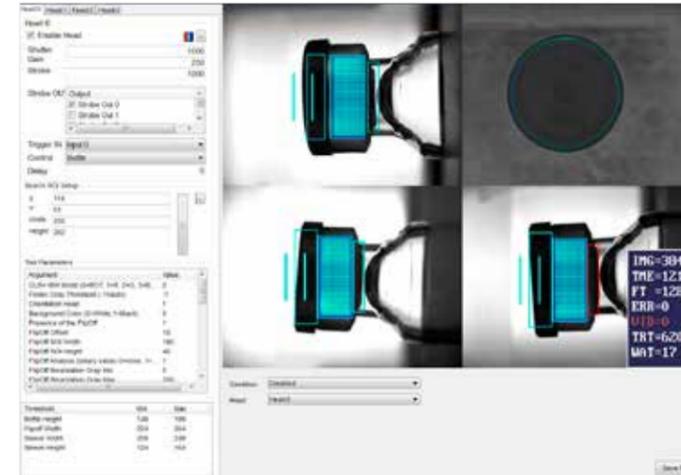
R&D - hardware

- Extensive know-how in the field of management technologies of image sensors
- Designing of analog and digital circuits
- Internal design of printed circuit boards PCB
- Internal programming of FPGA
- Firmware development and custom drivers
- Integration of the most important communication protocols: GigE Vision, Camera Link and USB3
- Designing of embedded systems with CPU 32-64 bit single-core and multi-core (ARM, x86, and DSP)
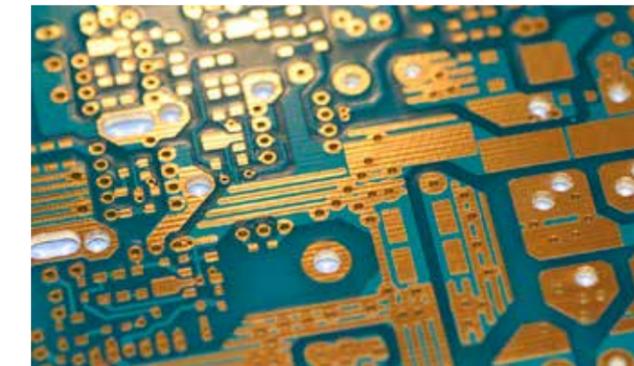
R&D - software

- Complete software libraries for image processing (TIL)
- Algorithms: OCR, OCV, bar code reader (1D/2D), dot code, pattern matching, blob analysis, color analysis, stereoscopy, laser triangulation, robot guidance, particle inspection
- Graphic development environment (Nautilus) for the creation of complete machine vision applications
- Operating Systems: Microsoft Windows, Linux and proprietary system (TOS)
- Assembler Programming, C, C++ for embedded platforms
- Visual Programming, C, C++ and .NET for PC applications (drivers and software)

R&D

Innovation, flexibility and customer orientation are the values on which we base all activities of our organization

▶ *R&D - Optics and mechanical Integration*

- Internal optics laboratory
- Development of custom made lighting systems
- Mechanical design to customer specifications (size, shape, volume production...)
- 3D Mechanical Engineering

▶ *R&D - Production & Quality*

- Electronic boards and finished products are 100% tested
- Final tests performed in climatic chambers with a temperature range that, depending on the product, can vary from -40°C to +80°C
- EMC tests (emission and immunity, conducted and radiated) in EMC internal laboratory including Anechoic Chamber
- Certified procedures for production units and R&D
- "Copy Exact" special procedures
- IPC610 guidelines for acceptability of electronic assemblies
- ISO 9001:2008, ISO 14001:2004, IRIS rev.2 certifications
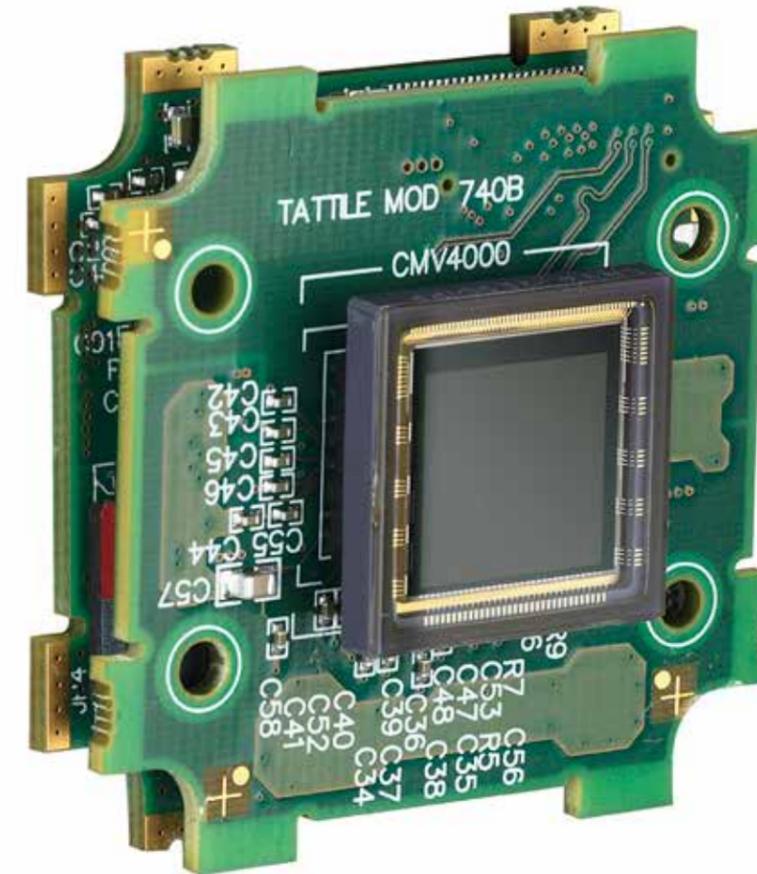
▶ *Custom Made Solutions*

From production of standard devices, Tattile supports a strong propensity to the development of custom made products and systems based on customers' specific requests (tailor made solutions).

To date, 45% of Tattile staff works in R&D; thanks to over thirty engineers with various specializations in hardware and software design, we are able to provide "tailored" and, at the same time, cutting-edge solutions.

The development of custom made software for image processing, communication and user interface can be integrated with the design of a fully implemented hardware in accordance with the requirements of the customer, allowing us to offer "turnkey" vision systems for industrial applications.

Nautilus

Best-of-Breed solutions for System Integrator & OEM

New platform to design custom vision solutions for industries and manage in-field vision devices

▼ **Unique Solution**

One software to control all Tattile's vision devices: Vision Controller and Smart Cameras.

▼ **Complete and intuitive**

Allows to create complete machine vision application with its 250+ tools, without writing a single line of code.

Nautilus

Tattile
Custom Vision Solutions

▼ **Application and interface, all in one**

Nautilus supervises the development of the machine vision application and the human-machine interface, from the same enviroment.

Automatic devices discovery and recognition

NAUTILUS automaticaly searches and
recognizes all connected devices via IP; both
Vision Controller and Smart Cameras.

Quick image setup

Immediate Live view from Cameras / Smart Cameras.
Simple image configuration management thanks to:
• Shutter, Gain, Strobe slidebar
• Automatic White Balance
• Best focus setting function
• Histogram display
• ColorMap view

Device I/O management

User can quickly verify I/O wiring and machine integration,
reducing start-up time and simplifying electrical debug.

Simple Devices Management

Complete display of device configuration:
• Type and number of connected cameras
• Software / Firmware versions
• Device parameters

Examples, templates and wizards

Nautilus offers a good range of example application and
templates to start from with your developements.
They range from OCR application to Robot Guidance, Code
Reader and gauging.

User oriented workflow environment

Thanks to a simplified design flow, NAUTILUS allows supervising the entire development and delivery process to achieve production needs in the minimum time.

User can design his custom vision application exploiting a device-oriented workflow environment.

The application is built inserting vision and flow control tools into a graphical application flow by drag & drop paradigm.

Complete Algorithm set

NAUTILUS includes more than 250 vision and flow-control tools for application development, allowing to make a state of the art application.

Open Platform

Program steps can be configured so to tailor the application on specific elaborations.

Actions and algorithms can be implemented using standard C/C++ code.

NAUTILUS implements an open platform supporting the integration of 3rd party and open source vision tools and libraries like Halcon, OpenCV and many others.

Multi-threading capability

NAUTILUS supports multithreading on application flow. Developer can easily parallelize analisys in order to achieve high speed application or create separate applications.
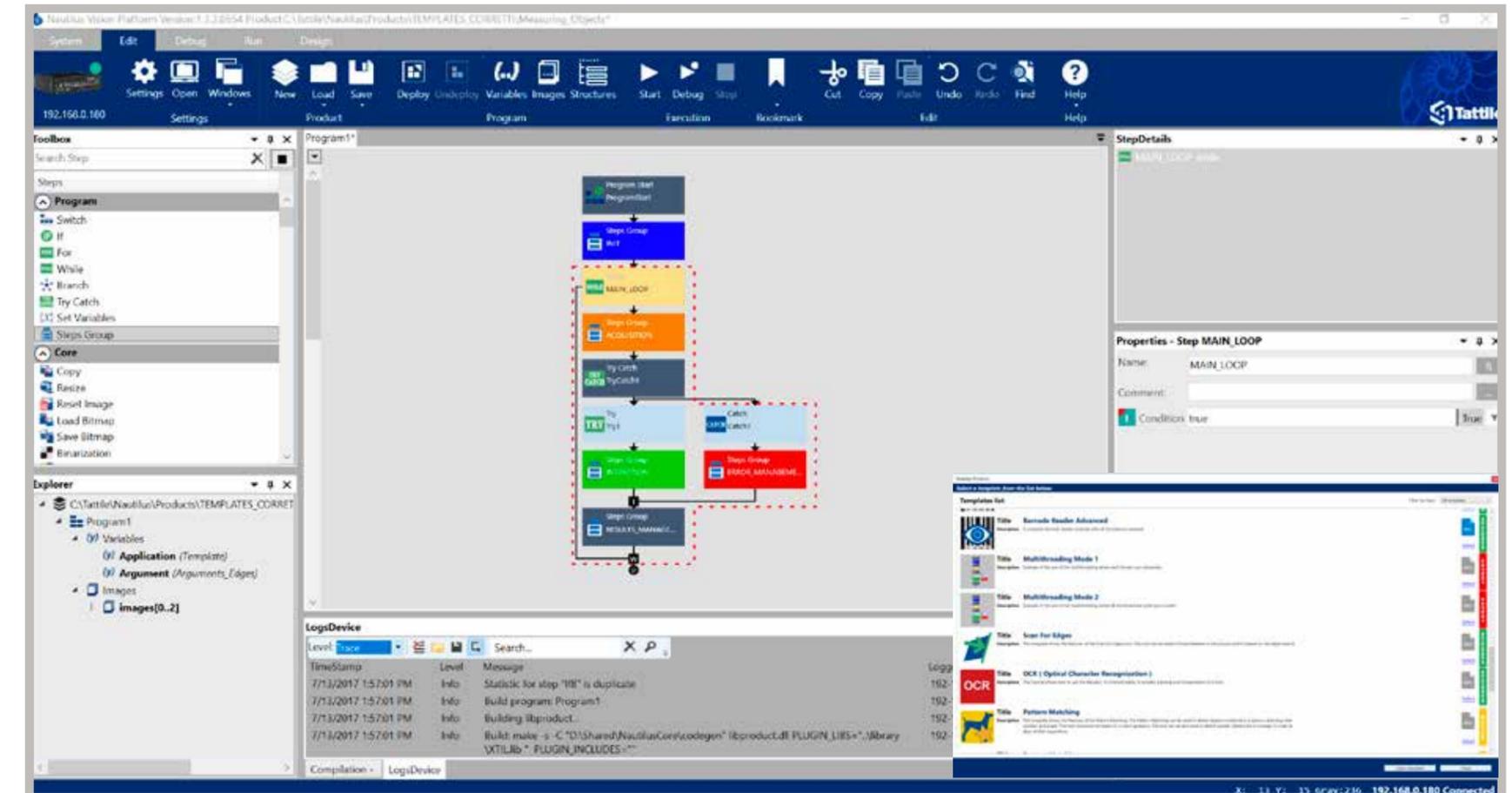
Easy debugging

Step-by-step control, breakpoint over the application execution flow and runtime access to application settings, give users the power to debug and test applications at any time.

Advanced monitoring

Advanced statistics for monitoring steps execution time allow the user to verify and keep under control the whole process of analysis.

SensorFox, oscilloscope-like function, monitors I/O events in Real-Time for event management and time-chart analisys.

Offline development

The internal device emulator enables users to start developing the vision application at early stages, and adapt dynamically to changing requirements in the environment.

Offline programming and debugging using the emulators reduce machinery stop time and increase production capability.

In-field Management

Management of in-field vision systems by monitoring and alerting; real-time access to device to control and change device behavior.
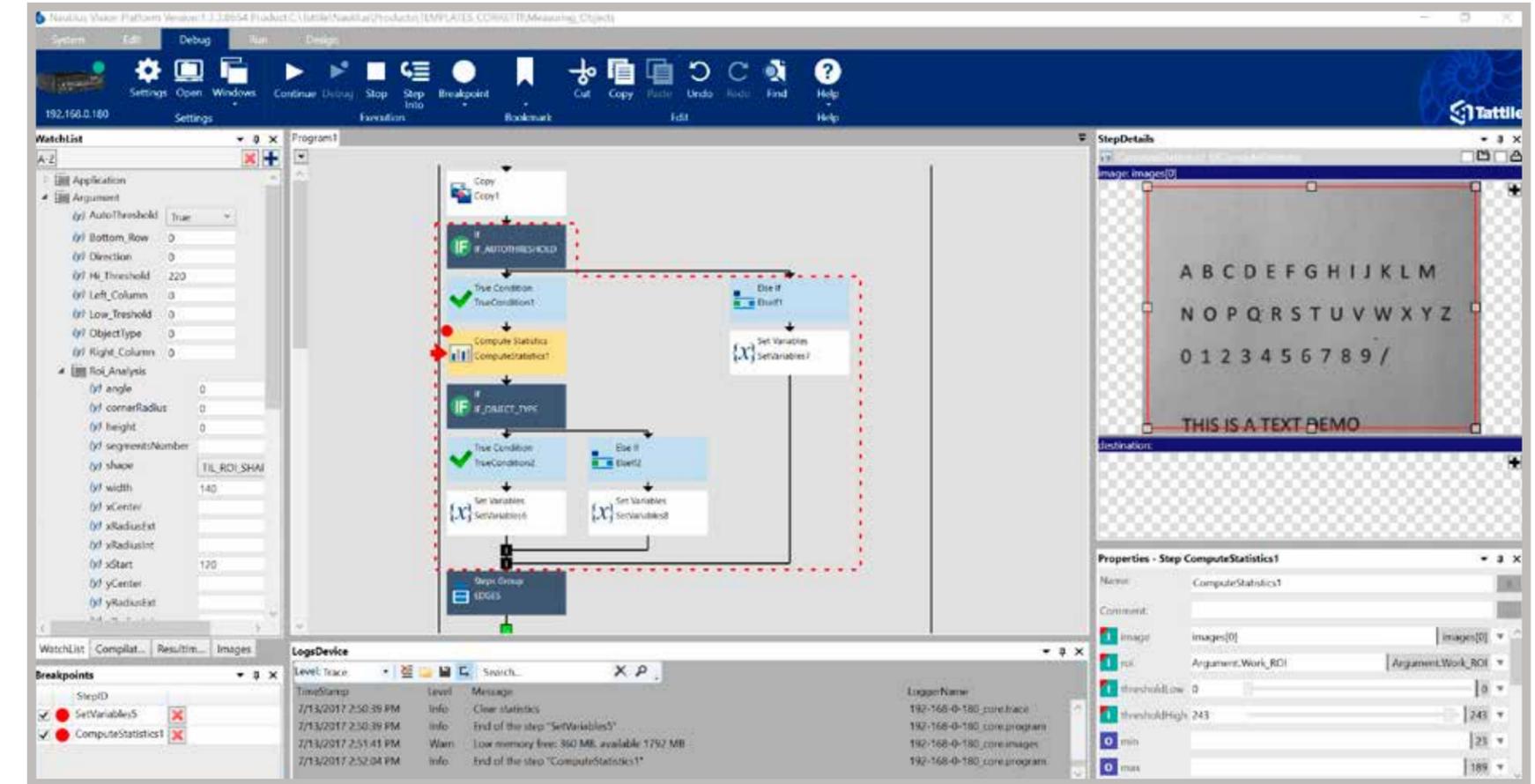
Integrated GUI interface

Create your custom Grafical User Interface to control and monitor devices directly with NAUTILUS platform, without using external software.
Use a WYSIWYG (what you see is what you get) enviroment to develop the user interface.

Multi-access Management

NAUTILUS allows you to create different interface programs that can be simultaneously connected to the same device. User can develop an operator interface for on-line monitoring and a supervisor interface for remote control.

Stand-Alone interface

Created interfaces are stand-alone programs, which therefore do not need the Nautilus platform to work.
User can install them on different PCs along the production line and inside the factory, allowing a multipoints management.
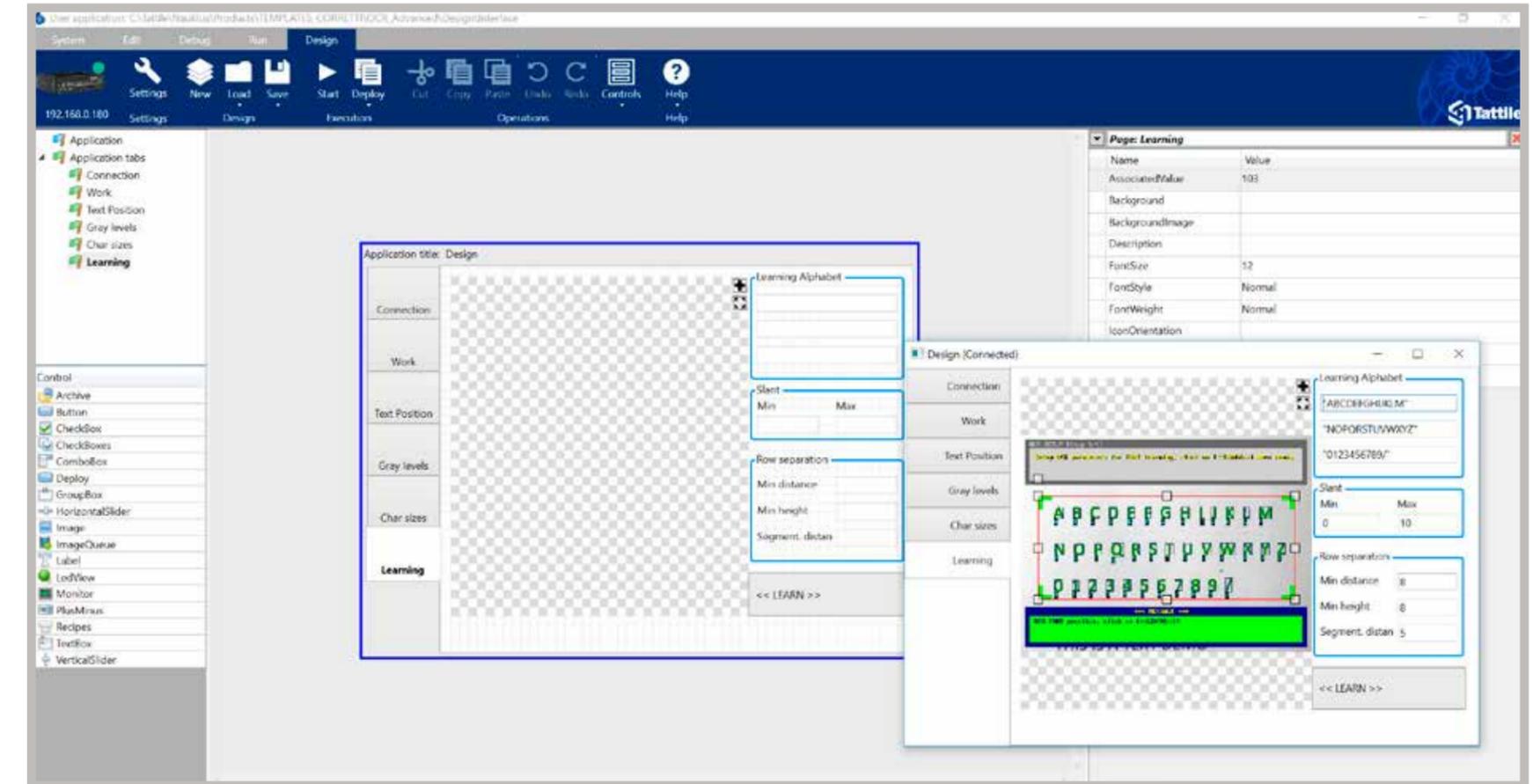
High-performance
industrial vision systems
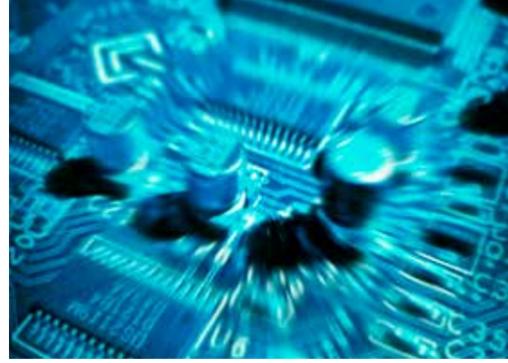
M100 GigE Series

Multi-Camera Vision Controller

M100 CLink Series

Multi-Camera Vision Controller

Plug & Control

◤ Easy cabling with PoE

◤ Multiple inspections available thanks to 6 GigE Vision ports and 4 USB3 ports

◤ Maximized acquisition performance through 6 GigE independent channels

◤ Multiple inspections available thanks to 4 CameraLink ports

◤ Maximized acquisition performance and pre-processing through dedicated large FPGA (programmable on demand)

◤ Easy cabling with PoCL

Common features

◤ Huge data record with 2 dedicated HD for storage

◤ Long Term Longevity up to 10 years

◤ Gigabit Ethernet network connectivity and Real Time Input & Output

◤ Customizable using 1 PCIe x8 expansion card

◤ Enhanced communication with Fieldbus and Industrial Ethernet connectivity (on demand)

◤ Open System: Windows Embedded Standard 7 64 bit (WES7) or Linux (on demand) O.S.

◤ Improved inspections capabilities through Intel i3/i7 high performance processor

Common features

◤ Fanless design for reduced maintenance cost

M100 GigE Series

Multi-Camera Vision Controller

▶ Gigabit Ethernet

6 Gigabit Ethernet ports with PoE (Power over Ethernet) allows the connection of GigE Vision cameras using only one cable (Ethernet + power supply).

Each Gigabit Ethernet port is connected to the CPU through a dedicated PCI-Express interface in order to guarantee the maximum acquisition performance.

Camera sync can be implemented using the 6 high-speed trigger outputs or thanks to the Precision Time Protocol (PTP) IEEE1588.

One additional Gigabit Ethernet port is dedicated to the LAN connection.

▶ Real Time I/O

The isolated high-speed digital I/O (8 in / 14 out) allows the perfect low-latency synchronization between vision system, cameras and machine automation.

Thanks to the FPGA technology, implementing real-time logics is incredibly easy.

▶ Long Term Longevity

M100 Series is designed to guarantee long term longevity of the main electronic components (up to 10 years).

▶ USB 3.0 / 2.0

4 shared ports allows the connection of high-speed USB 3.0 Vision cameras.

Additionally, two USB 2.0 ports are accessible from the front panel and one USB 2.0 internal protected port can be used to connect a license dongle or other sensitive devices.

▶ Intel 3rd generation i3 / i7 processors

Today's multi-camera vision applications require a performing processing engine. The M100 is powered by Intel 3rd generation i3 / i7 processors with 8GB of DDR3 RAM (up to 16 GB) in order to tackle the most demanding inspection tasks.

▶ Direct encoder input

If the vision system must be interfaced to an incremental encoder, the line-drive RS422 encoder input allows a perfect synchronization without the need of other interface devices.

▶ SSD/HDD internal data storage

The internal SSD disk stores the operating system and the user program; it can be write-protected to enhance reliability.

Two separated 2.5" hard disk slots provide space for image storage, statistical data and more.

Separate storage slots increase the bandwidth for highspeed applications and reduce the possibility of data loss.

▶ Open Architecture

Thanks to the use of standard WES 7 64 bit or Linux (on demand) O.S., it is possible to develop Vision Application with Tattile software or third parties library / software.

Display Port

USB 2.0 x2

USB3 3.0 x4

Gigabit Ethernet x1

GigE Vision PoE x6

Power Input

RS232/RS485 x1

Fieldbus / Industrial Ethernet (on demand)

Digital I/O

Encoder

M100 Series

PoE

USB 3.0

PCIe 1x

PCIe 1x

PCIe 1x

PCIe 1x

PCIe 1x

PCIe 1x

CPU INTEL i3 / i7

3x USB 2.0

PCIe 8x

DP Port

Network

Fieldbus

Encoder

Digital I/O

FPGA

mSata SSD

HDD/SSD 1

HDD/SSD 2

RS-232/485
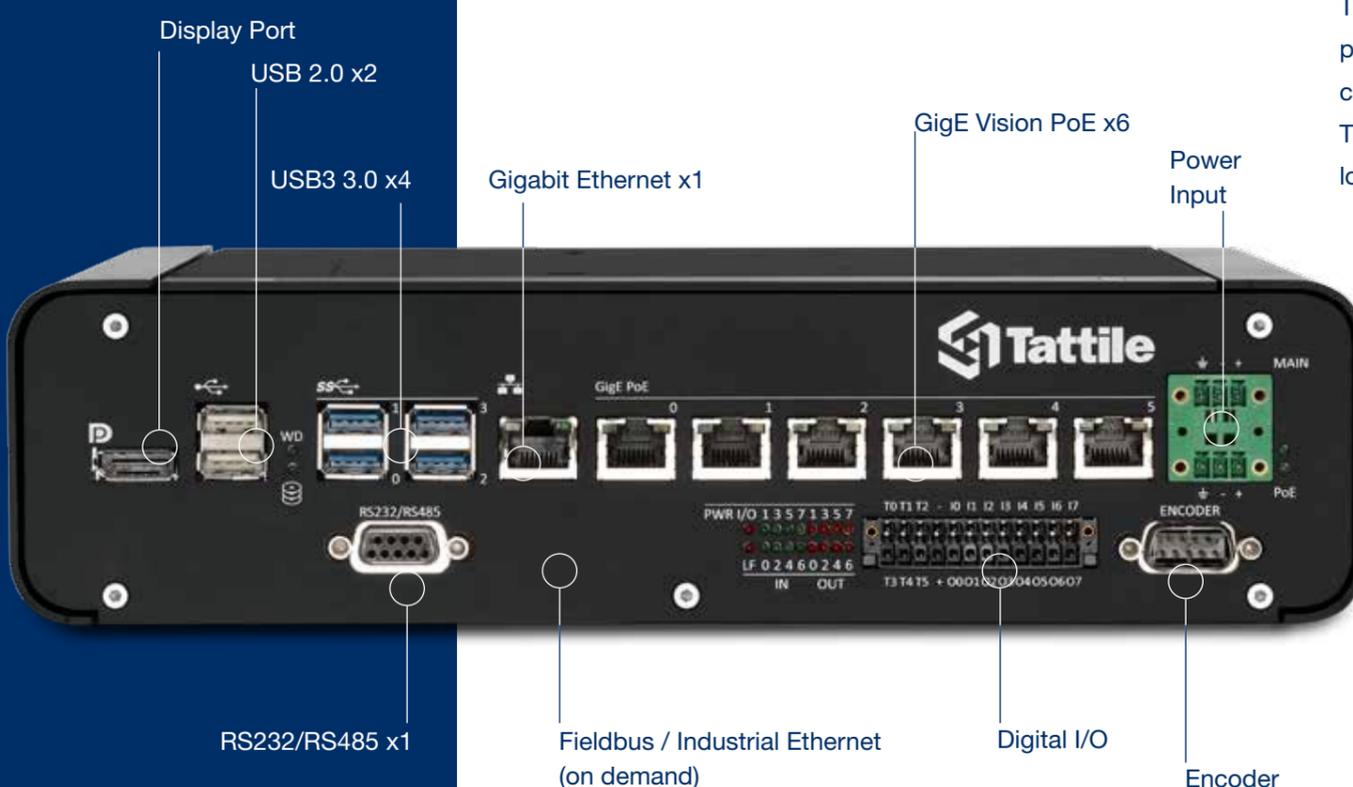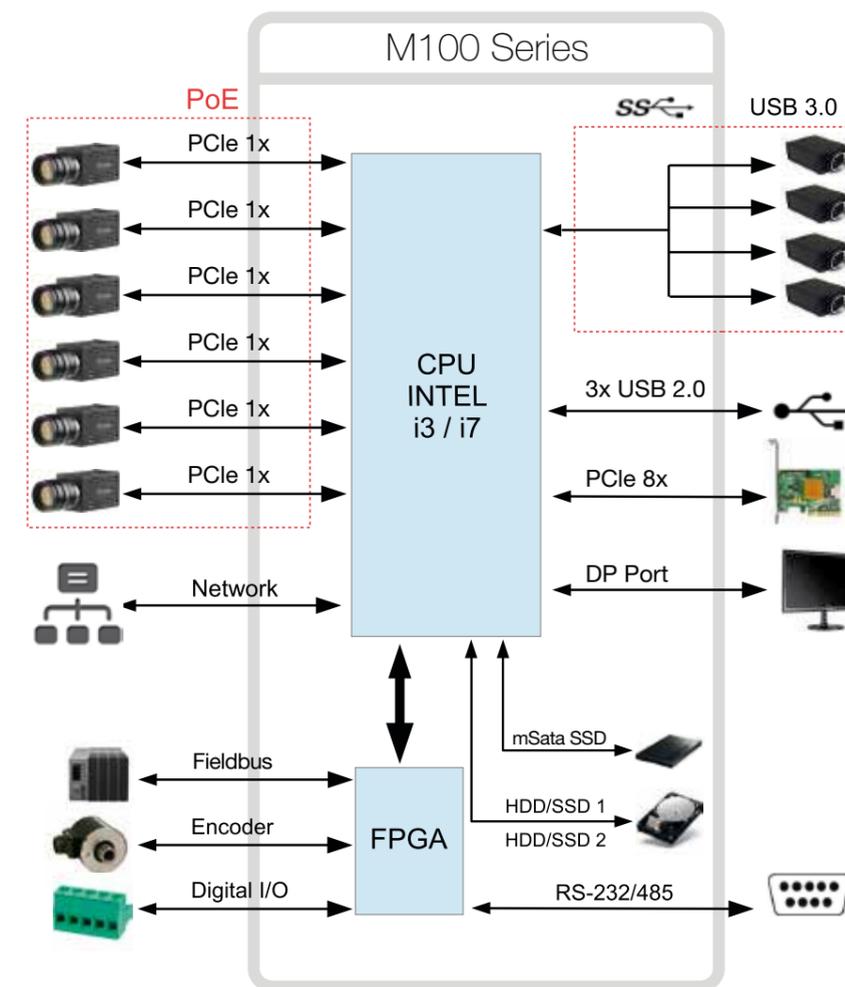
Multi-Camera Vision Controller

▸ **Camera Link**

4 Camera Link ports with PoCL (Power over Camera Link) allow the connection of Camera Link cameras using only one cable (Camera Link + power supply).

Device supports four Base link (Max Bandwidth 255MB/s), two Medium link (Max Bandwidth 510MB/s), two Full link (max badwidth 680MB/s) or two 80-bit link (max bandwidth 850MB/s) that is directly connected to FPGA device.

▸ **FPGA**

The image acquisition and image preprocessing are performed by dedicated FPGA in real time (programmable on demand).

▸ **Direct encoder input**

If the vision system must be interfaced to an incremental encoder, the line-drive RS422 encoder input of the M100 allows a perfect synchronization of the system without the need of other interface devices.

▸ **USB 3.0 / 2.0**

2 ports allow the connection of high-speed USB 3.0 Vision cameras.

Additionally, two USB 2.0 ports are accessible from the front panel and one USB 2.0 internal protected port can be used to connect a license dongle or other sensitive devices.

▸ **Long Term Longevity**

M100 Series is designed to guarantee long term longevity of the main electronic components (up to 10 years).

▸ **Real Time I/O**

The isolated high-speed digital I/O (8 in / 14 out) allows the perfect low-latency synchronization between vision system, cameras and machine automation.

Thanks to the FPGA technology, implementing realtime logics is incredibly easy.

▸ **Intel 3rd generation i3 / i7 processorss**

Today's multi-camera vision applications require a performing processing engine.

The M100 is powered by Intel 3rd generation i3 / i7 processors with 16GB of DDR3 RAM in order to tackle the most demanding inspection tasks.

▸ **Open Architecture**

Thanks to the use of standard WES 7 64 bit or Linux (on demand) O.S., it is possible to develop Vision Application with Tattile software or third parties library / software.

Display Port

USB 2.0 x2

USB3 3.0 x2

Camera Link
PoCL x 4

Gigabit Ethernet x2

Power
Input

RS232/RS485 x1

Fieldbus / Industrial Ethernet
(on demand)

Digital I/O

Encoder

M100 Series

CLink
CLink

PoCL

FPGA

CLink
CLink

PoCL

USB 3.0

Network

Network

PCIe 8x

CPU
INTEL
i3 / i7

3x USB 2.0

DVI Port

Fieldbus

Encoder

Digital I/O

FPGA

mSata SSD

HDD/SSD 1
HDD/SSD 2

RS-232/485
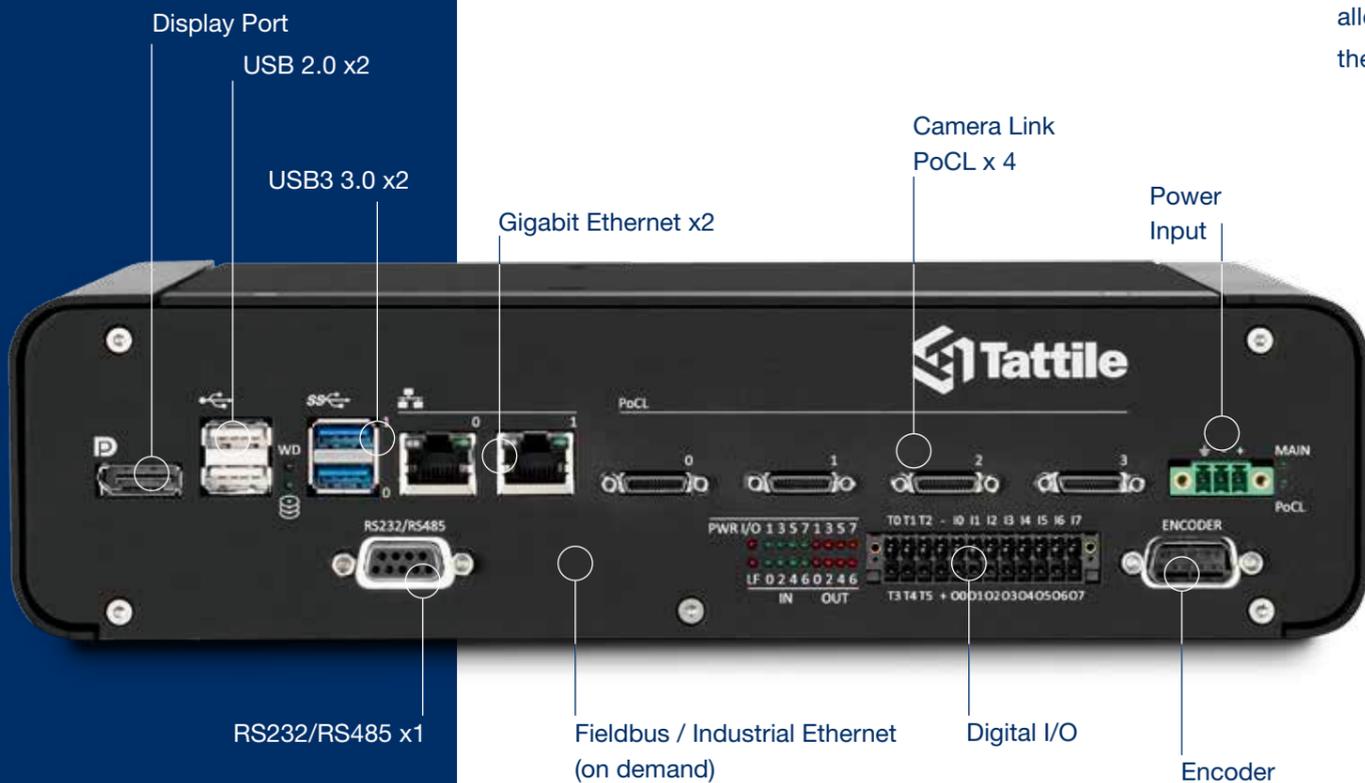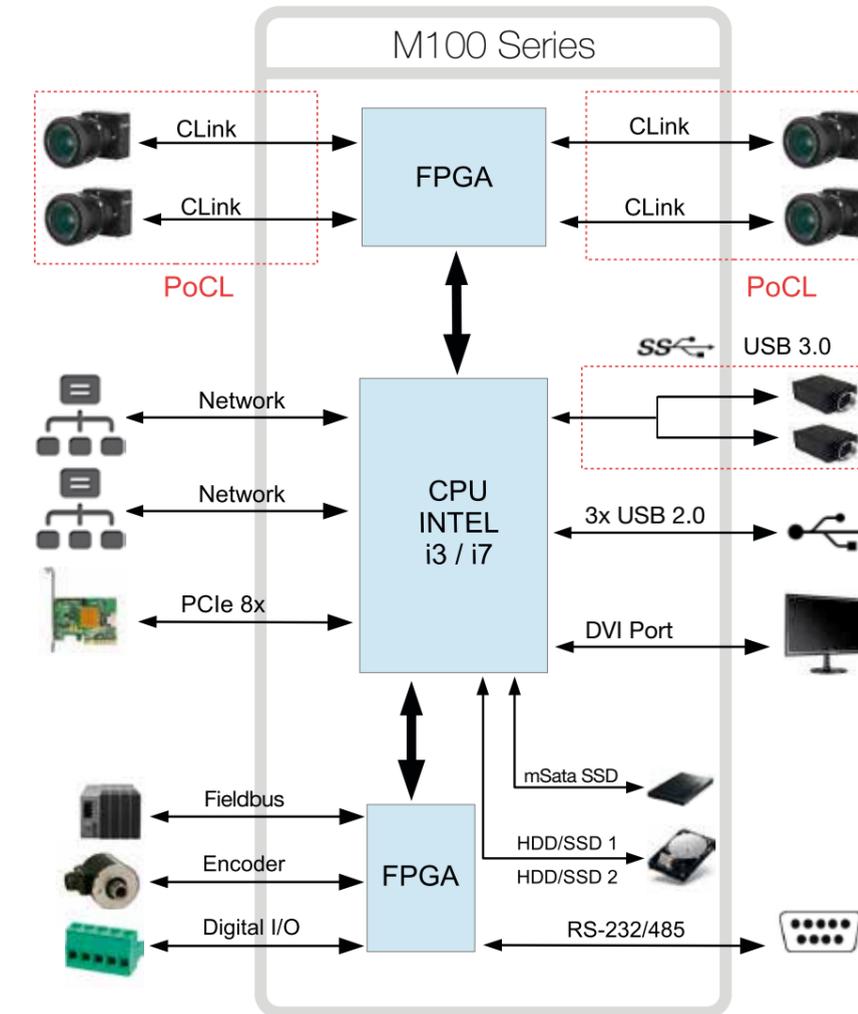
M100 Series | Common Data

Plug & Control

Fieldbus and Industrial Ethernet connectivity

Several Fieldbus and Industrial Ethernet interfaces (Profinet, Profibus, Ethernet/IP, EtherCAT…) are integrated on-demand.
This simplify and speeds up the communication with the automation system.

DIN Mounting

The M100 Series has 2 DIN mounting point for quickly assembly inside racks.

PCIe expansion

One PCI Express x8 expansion slot gives the possibility to install an additional card like a frame grabber or a vision processing unit (from Tattile or other manufacturers).

Multi-Camera Vision Controller

On demand
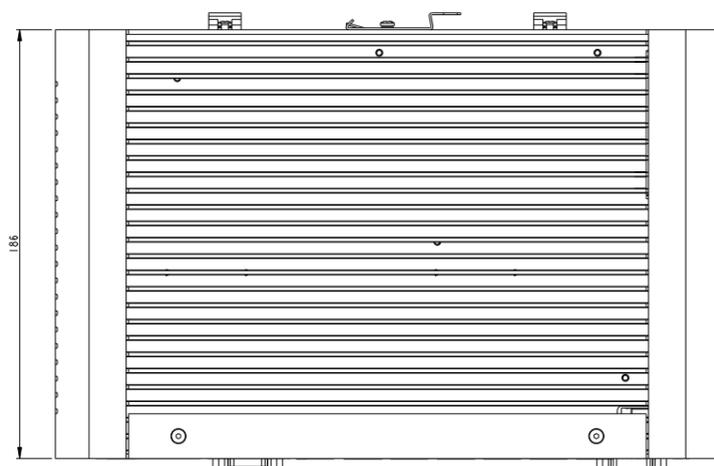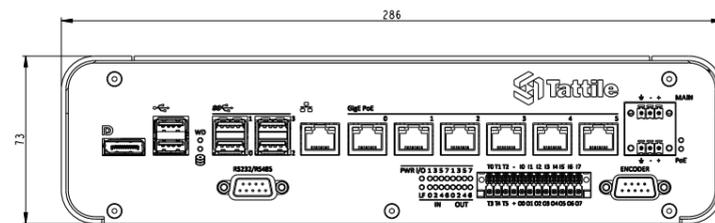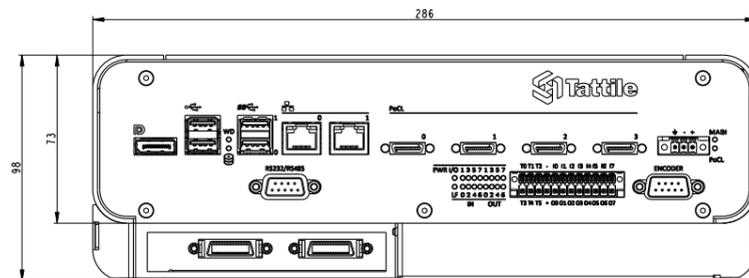
Technical Data

	M100 GigE	M100 CLink
Processing		
CPU	Intel i3 1.6 GHz dual core Intel i7 2.1 GHz quad core	Intel i7 2.1 GHz quad core
FPGA	Altera Cyclone GX 22K LEs (I/O management)	Xilinx Kintex-7 160K LEs (Pre-Processing) Altera Cyclone GX 22K LEs (I/O management)
RAM	8 GB (up to 16 GB)	16 GB
Storage	1x SSD 16 GB (up to 128 GB) 2x SATA HDD/SSD (optional)	
Camera interface		
Protocols	GigE Vision - USB 3.0	Camera Link - USB 3.0
GigE Vision ports	6	-
USB 3.0 ports	4	2
Camera Link ports	-	4
Camera supply	PoE - USB	PoCL - USB
Machine interface		
LAN	1x Gigabit Ethernet	2x Gigabit Ethernet
Video output	1x Display Port	
Serial interfaces	RS232/RS485	
Expansion bus	1x PCIe x8 expansion card (Frame grabber, FPGA, DSP, GPU)	
USB 2.0	2x USB 2.0 External / 1x USB 2.0 Internal	
Digital inputs	8x isolated PNP	
Digital outputs	8x isolated PNP	
Trigger	6x fast isolated PNP	
Encoder inputs	3-channel Line drive RS422	
Fieldbus (on demand)	Profinet, Profibus, Ethernet/IP, EtherCAT, DeviceNet, Modbus, Powerlink, CANopen	
Machine interface		
Power Supply	22 – 27 VDC	
Weight	3.5 Kg	
Cooling	Fanless	
Operating Temperature	0 °C - 45 °C	
Conformity	2004/108/CE - EN 61326-1:2066 - EN 62311:2008 - RoHS	
Software		
Operating System	Windows Embedded Standard (WES) 7 64 bit, Linux (on demand)	

M100 vs. Industial PC

FEATURE	M100 SERIES	INDUSTRIAL PC
Ready-to-use	☑	🚫
Do not require additional component (like framegrabber or switch)	☑	🚫
Integrated 6x GigE PoE with dedicated PCIexpress lanes	☑	🚫
Integrated 4 CameraLink interfaces with FPGA for preprocessing	☑	🚫
6 fast trigger output	☑	🚫
Precision Time Protocol IEEE1588	☑	🚫
FPGA-enabled real time I/O	☑	🚫
Line-drive direct encoder input	☑	🚫

Part Numbers

F01605	M110 GigE i3 - mSATA 16 GB SSD - 8 GB RAM
F01606	M120 GigE i7 - mSATA 16 GB SSD - 8 GB RAM
F01656	M120 GigE i7 - mSATA 16 GB SSD - 16 GB RAM
F01685	M120 GigE i7 – SATA 256 GB SSD - 8 GB RAM
F01724	M120 GigE i7 – SATA 256 GB SSD - 16 GB RAM
F01551	M160 CameraLink i7 - mSATA 16 GB SSD - 8 GB RAM
T18396	PCI Express Expansion Module for M100 Series

TAG-7 Series

CameraLink & GigE Vision Line Scan Camera
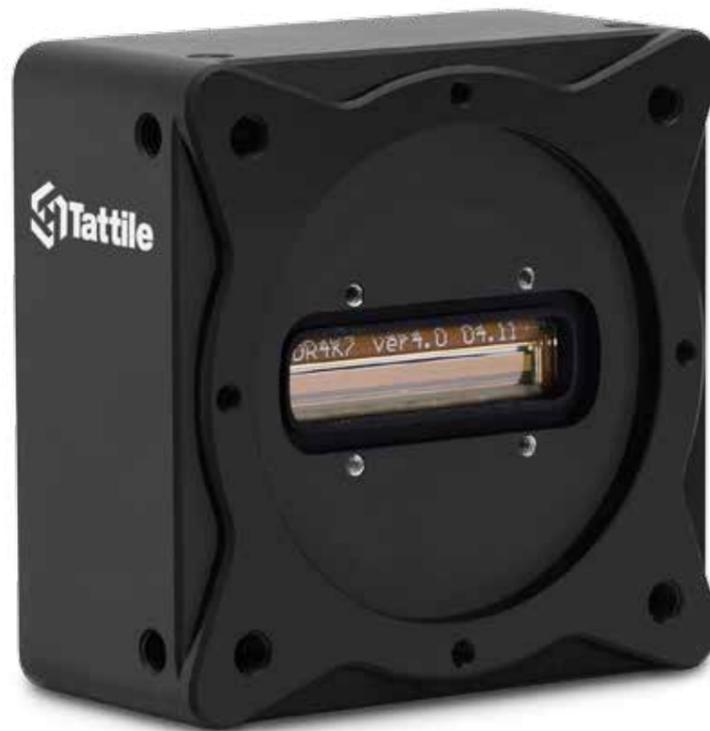
▼ Linear CCD
and CMOS technology

▼ Multiple resolutions
from 2K up to 8K,
mono and color

▼ GigE Vision and
CameraLink protocols

▼ Compact size
62x62x28,9 mm

▼ High Speed: up to
80 KHz line rate

▼ Internal FPGA for
image pre-processing

▼ TAG-7

The TAG-7 is the new-generation line scan camera platform
for Industrial application.
Available with resolution of 2K, 4K and 8K, both
monochromatic and color as well as GigE or CameraLink
interface, the TAG-7 cameras are suitable for all vision
applications

▼ FPGA

Thanks to Tattile's technology based on FPGA, this line scan
camera can execute different preprocessing algorithm in real
time

▼ Compact size

Its compact form allows easily integration into any machine
and production line, expecially for multi-camera systems.

▼ GigE Vision

Thanks to GigE Vision Interface, the camera can be
easily integrate into a vision system, without using a
framegrabber. TAG-7 GigE runs with a frame rate up to
49KHz

▼ CameraLink

TAG-7 CameraLink versions support all configurations
(Base, Medium, Full and 80bit), with a Line Rate up to 80
KHz. PoCL (Power over CameraLink) functionality allows a
quick and easy installation.

CameraLink & GigE Vision Line Scan Camera

GigE Vision

Compact size

Camera Link

Power supply

Power supply

Encoder
Digital I/O

ETH

I/O - ENC

PWR

PWR LF

CamLINK 1

CamLINK 2

PWR LF

PWR

Technical Data

Model	Monochrome			Bilinear	
Resolution	2048	4096	8192	2x2048	2x4096
GigE Line Rate	49 KHz	24 KHz	12 KHz	24 KHz	12 KHz
CLink Line Rate	80 KHz			80 KHz	
Type	Mono			Color	
Sensor type	CMOS Awaiba			CMOS Awaiba	
Pixel size (µm)	7 x 7	7 x 7	3.5 x 3.5	7 x 7	7 x 7
Pixel Bit Depth	8 / 10 / 12 bit				
FPGA	Altera Cyclone IV 40K LEs				
Lens	F-mount, C-mount M42, M72 [*]				
Sync	External trigger / Free run				
Digital inputs	3 RS422 (only GigE version)				
Digital outputs	2 RS422 (only GigE version)				
Power supply	+12/24 VDC PoCL (only CameraLink version)				
Power consumption	3.6 W				
Dimensions	62x62x28.9				
Conformity	CE, RoHS				

[*] Available on demand

Part Numbers

TAG-7 Series - Camera Link - Part Number	
F01626	2048@80000 Mono
F01632	4096@80000 Mono
F01648	8192@80000 Mono
F01628	2x2048@80000 Color
F01634	2x4096@80000 Color
T19014	Adattatore 'F' Mount

TAG-7 Series - GigE Vision - Part Number	
F01625	2048@49000 Mono
F01631	4096@24000 Mono
F01647	8192@12000 Mono
F01627	2x2048@24000 Color
F01643	2x4096@12000 Color
T19014	Adattatore 'F' Mount

Ø 47 H7

53

48

53

48

48

66.4

37.5
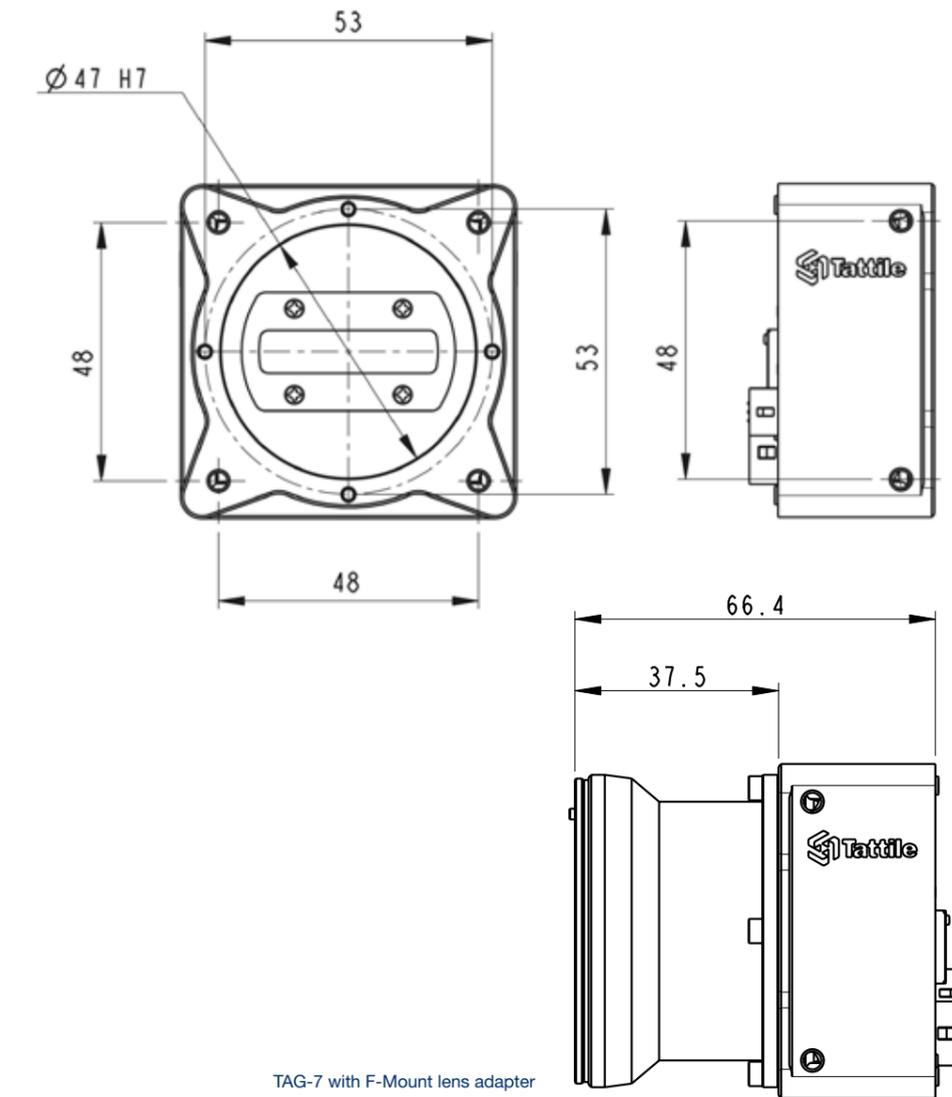
TAG-7 with F-Mount lens adapter

TAG-5 Series

Plug & Control

GigE Area Camera

◤ Area Scan Global
Shutter CMOS
technology

◤ Resolution
from VGA to
5 Megapixel

◤ High frame rate
up to 300 fps
with VGA sensor

◤ GigE Vision
and GenICam
compliant

◤ asy cabling with Power
over Ethernet (PoE)

◤ Multiple Strobe Output
for lighting control

◤ Partial Scan to reach
high frame rate

◤ **TAG-5**

The TAG-5 is the new-generation camera platform for Industrial application. It is available in 3 resolution: from VGA with a frame rate of 300 fps up to 5 Megapixels with a frame rate of 22 fps; all resolution are available with mono and color sensors.

◤ **CMOS Sensor**

Based on advanced global shutter CMOS technology and GigE Vision protocol, the TAG-5 will fulfill your application requirement. The frame rate of the camera can be even increased thanks to the windowing features; in fact, the TAG-5 can capture only a portion of the image sensor allowing higher frames rate for smallest region of interest.

◤ **GigE Vision PoE**

Thanks to the GigE Vision standard protocol, it does not require the use of any frame grabber, and the camera can be easily interfaced to embedded and PC-based vision system. The TAG-5 supports IEEE 1588 precise time protocol, enabling accurate synchronization with multi-camera acquisition. In addition to the standard 24 VDC power supply, the camera can be powered by PoE (Power over Ethernet) for easy cabling.

◤ **I/O**

The camera offers a RS232 serial port, 4 strobe channels for illuminator strobing and control, one input and one output opto-isolated.

Custom Vision Solutions

TAG-5 Series

GigE Area Camera

Power supply
digital I/O
strobe RS232

PoE GigE Vision

CMOS sensor

Technical Data

Resolution	640x480	640x480	2048x1080	2048x2048	2448x2048
Frame rate	300 fps	298 fps	44 fps	22 fps	23 fps
Sensor type	1/4" CMOS	1/3" CMOS	2/3" CMOS	1" CMOS	2/3" CMOS
Sensor model	PYTHON300	CMV300	CMV2000	CMV4000	IMX264
Pixel size	4.8 x 4.8	7.4 x 7.4	5.5 x 5.5	5.5 x 5.5	3.45 x 3.45
Lens	C-mount				
Type	Mono	Mono / Color			Mono
Shutter	Global shutter				
Interface	GigE Vision				
Sync	External trigger / Ethernet / Free run				
Digital inputs	1 PNP protected				
Digital outputs	1 open collector protected				
Strobe	4 channels				
Serial port	RS232				
Power supply	+24 VDC / PoE				
Power consumption	3.8 W				4 W
PoE	IEEE 802.3 af				
Dimensions	34x34x54 mm		34x34x59 mm		34x34x54 mm
Weight	115 g				
Internal protection	IP 42				

Part Numbers

F01552	640x480 298 fps mono
F01553	640x480 298 fps color
F01603	2048x1088 44 fps mono
F01604	2048x1080 44 fps color
F01554	2048x2048 22 fps mono
F01555	2048x2048 22 fps color
F01699	640x480 300 fps color
F01840	2448x2048 23 fps mono

34

34

58.8/54.3
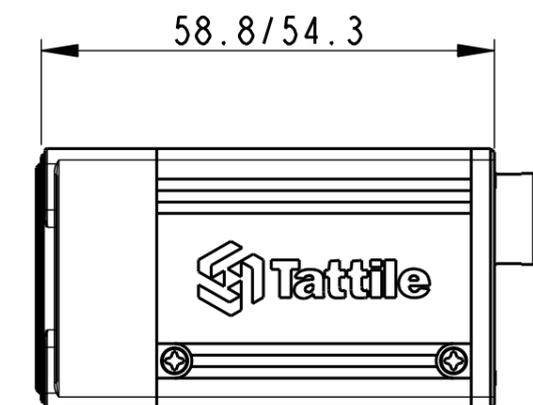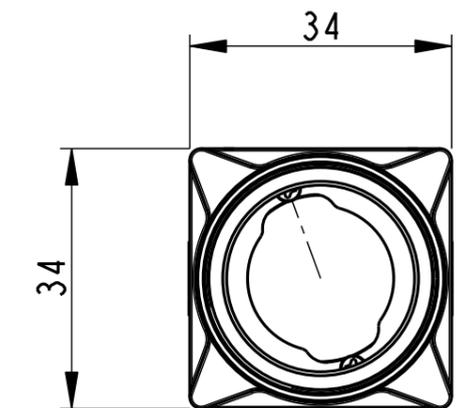
S12MP Series

High Resolution Smart Camera

▼ High resolution:
12MP CMOS sensor

▼ Programmable FPGA for
image processing

▼ Powerful processing
architecture based on
Zynq SoC

▼ GigE Server on-board
for GigE Vision protocol
management

▼ High speed:
up to 300 frames
per second

▼ Open system with
Linux O.S.

Architecture

The fast acquisition and processing of high-resolution
images requires a powerful electronic architecture. The
S12MP Smart Camera features a Dual Core Cortex-A9
667MHz CPU and an Xilinx Kintex 125K Logic Cells FPGA
working closely together.

Thanks to Tattile's technology based on FPGA, this smart
camera can guarantee the real-time execution of critical
functions such as image capture, image pre-processing
and I/O.

Ultra High-Speed

With a 12 Megapixels resolution and a speed of 300 frame
per second, S12MP Smart Camera opens new horizons
for your applications.

The frame rate of the camera can be further increased
thanks to the windowing features: capturing only a portion
of the sensor allows higher frame rates for smallest
regions of interest.

FPGA

The image acquisition and analysis are performed by
dedicated large FPGA.
The FPGA is programmable by user, in order to allow a
real time processing.

Open System.

The S12MP is based on a Linux O.S. making possible to
develop Vision Applications with Tattile software (available
on demand), or to deploy third parties libraries / software.

GigE Server

The S12MP is equipped with a GigE Server; data and
image management of the S12MP can be done using
theGigE Vision standard protocol, for easy and quick
integration.

Interface and Communication

The integration of the S12MP Smart Camera is made
easy by the full-featured set of interfaces available: Gigabit
Ethernet, 2 inputs LVDS, 2 outputs LVDS.

Custom Vision Solutions

High Resolution Smart Camera

Gigabit Ethernet

F-Mount support   Small footprint

12MP CMOS
sensor

Power supply
Digital I/O
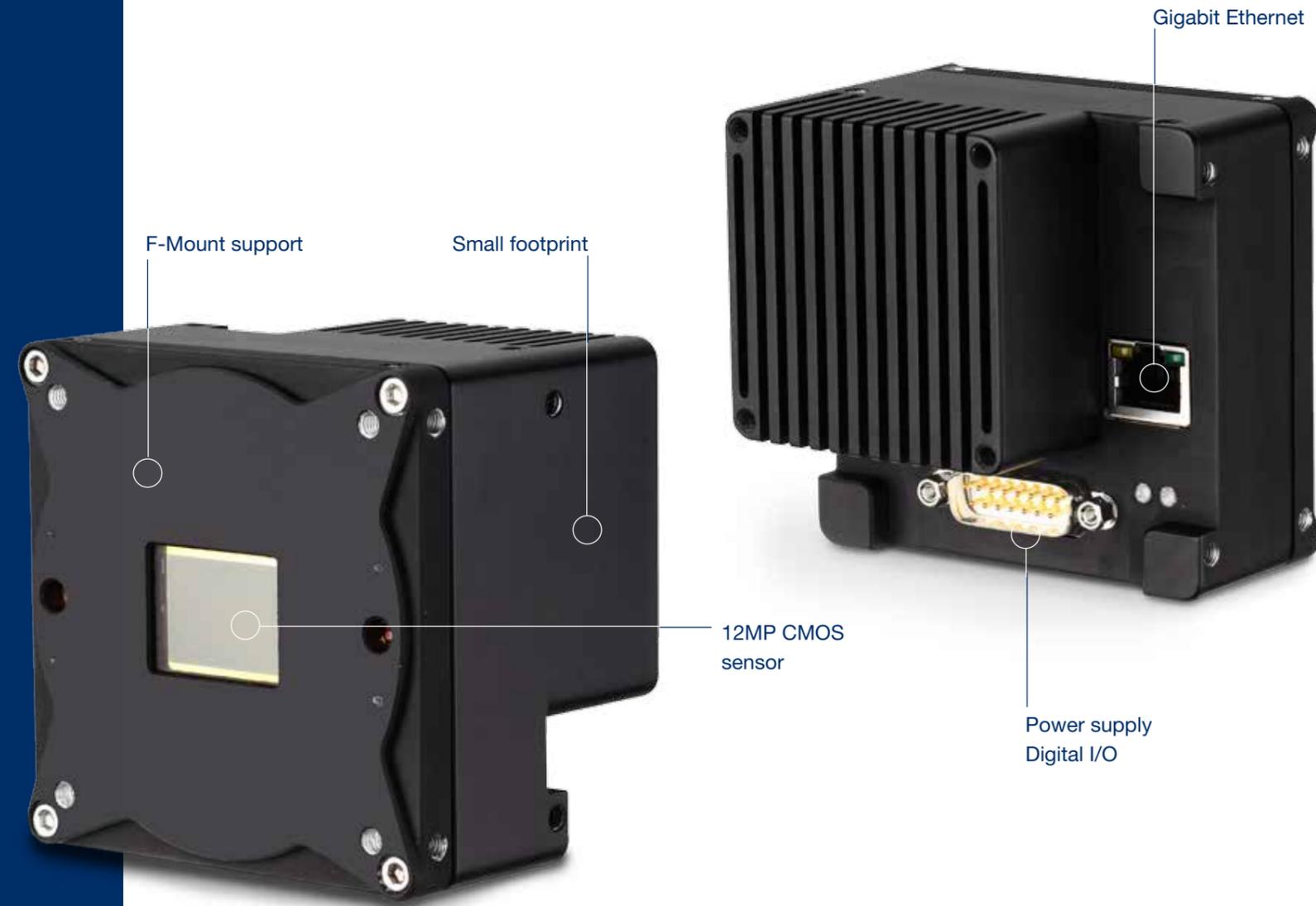
Technical Data

Specification	Value
Resolution	4096 x 3072 pixels
Frame rate	12MP 4096x3072@300 (10bit mode)
Sensor type	CMOS Global shutter
Sensor model	CMOSIS CMV12000
System architecture	Xilinx Zynq 7030
CPU	Dual core ARM Cortex-A9 667 MHz
System RAM	1 GB DDR3
FPGA	Xilinx Kintex 125K LEs
FPGA-CPU interface	High Speed Amba bus internal to chip (10Gbit/s every channel)
Storage	Secure Digital 8 GB (up to 32 GB)
Digital inputs	2x LVDS
Digital outputs	2x LVDS
Interface	Gigabit Ethernet
Lens	F-Mount
Operating system	Linux
Power supply	12 VDC ±10%
Power consumption	~ 12W
Operation temperature	0 to 45°C
Dimension	80 x 80 x 60 mm

Part Numbers

F01835	S12MP Smart Camera
T19014	Adattatore 'F' Mount
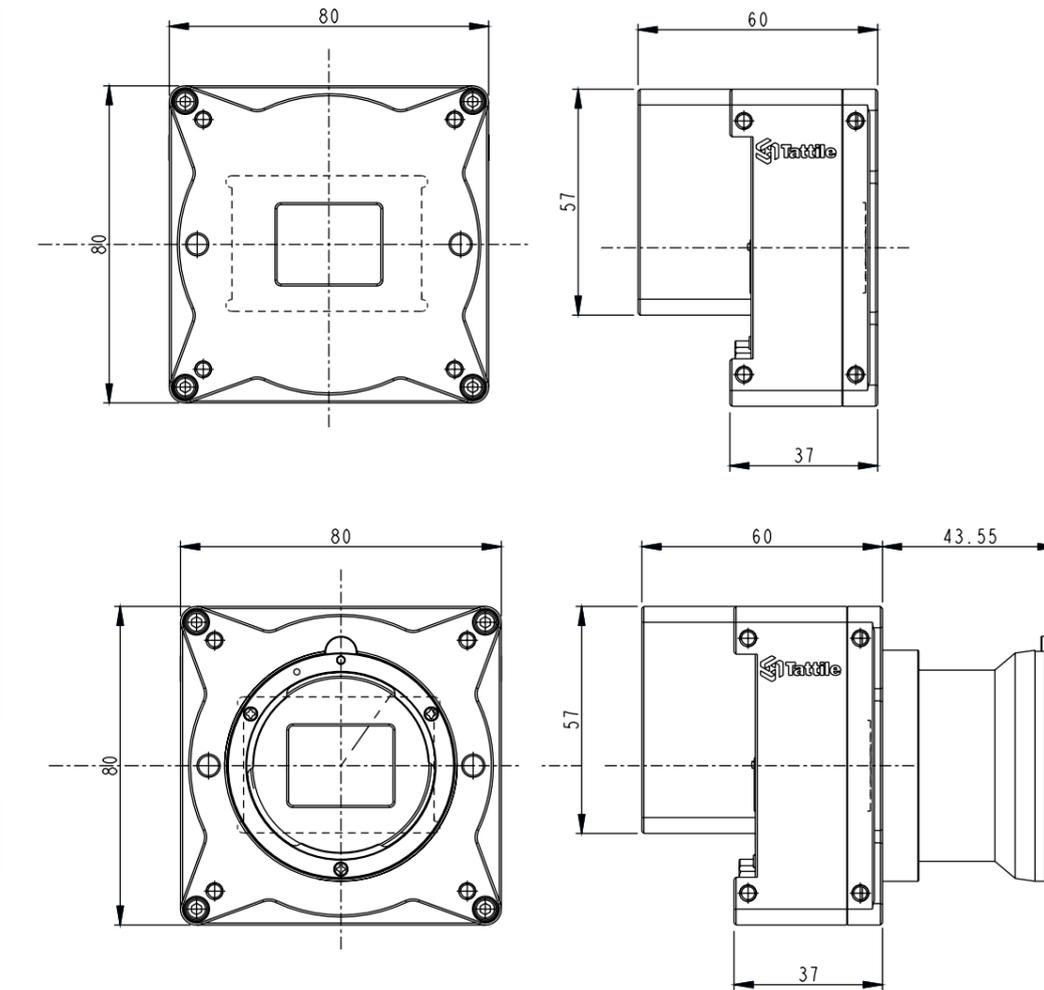
High Performance Inspection

4 Megapixel Smart Camera
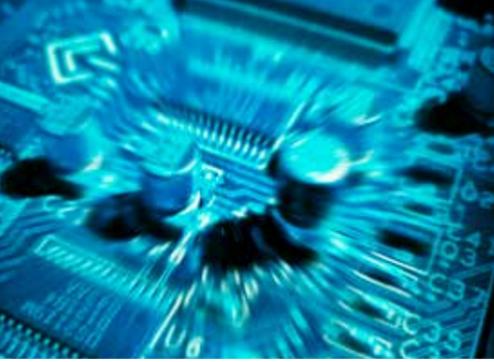
High-resolution: 4.2 Megapixels global shutter CMOS image sensor

Ultra high-speed: 180 frames per second at full resolution

Powerful image processing: Dual Core Cortex-A9 processor and Xilinx FPGA

Open system with Linux O.S.

IP-67 Rated enclosure

Complete interface and communication capabilities: Gigabit Ethernet, digital I/O, RS232/485 serial ports, encoder input

Ultra High-Speed

With a 4.2 Megapixels resolution and a speed of 180 frame per second, S200 Smart Camera opens new horizons for your applications.
The frame rate of the camera can be further increased thanks to the windowing features: capturing only a portion of the sensor allows higher frame rates for smallest regions of interest.

FPGA

The image acquisition and image preprocessing are performed by dedicated FPGA in real time (programmable on demand).

IP-67

IP-67 rated housing of S200 Smart Camera allows the installation even in harsh enviroment.

Architecture

The S200 Smart Camera features a Dual Core Cortex-A9 800MHz CPU and an Xilinx Artix 85K Logic Cells FPGA working closely together.

Thanks to Tattile's technology based on FPGA, this smart camera can guarantee the real-time execution of critical functions such as image capture, image preprocessing, I/O and incremental encoder management.

Open System

Thanks to the use of Linux O.S., it is possible to develop Vision Application with Tattile software or third parties library / software.

Direct encoder input

If the vision system must be interfaced to an incremental encoder, the line-drive RS422 encoder input allows a perfect synchronization without the need of other interface devices.

Interface and Communication

The integration of the S200 Smart Camera is made easy by the full-featured set of interfaces available: Gigabit Ethernet, RS422 incremental encoder input, RS232, RS485, 2 inputs, 3 outputs, 3 strobe outputs.

Custom Vision Solutions

High Performance Inspection

4 Megapixel Smart Camera

Power supply
digital I/O
RS232/485

Encoder input
strobe output

Compact size

Gigabit Ethernet

C-Mount lens

IP67 rated

Technical Data

Specification	Value
Resolution	2048 x 2048 pixels
Frame rate	180 fps
Sensor type	1" CMOS
Sensor model	CMV4000
CPU	Dual core ARM Cortex-A9 800 MHz
System RAM	1 GB
Flash Memory	Secure Digital 8 GB (up to 32 GB)
FPGA	Xilinx Artix-7 85K LEs
FPGA RAM	1 GB
Digital inputs	2
Digital outputs	3 PNP
Strobe output	3 channels
Encoder input	3 channels RS422 Line Driver
LAN	Gigabit Ethernet
Serial interfaces	RS232-RS485
Internal Protection	IP67
Lens	C-Mount
Operating system	Linux
Power supply	24 VDC

Part Numbers

F01576	S200 Smart Camera 2048X2048 Mono

45

45

127.7
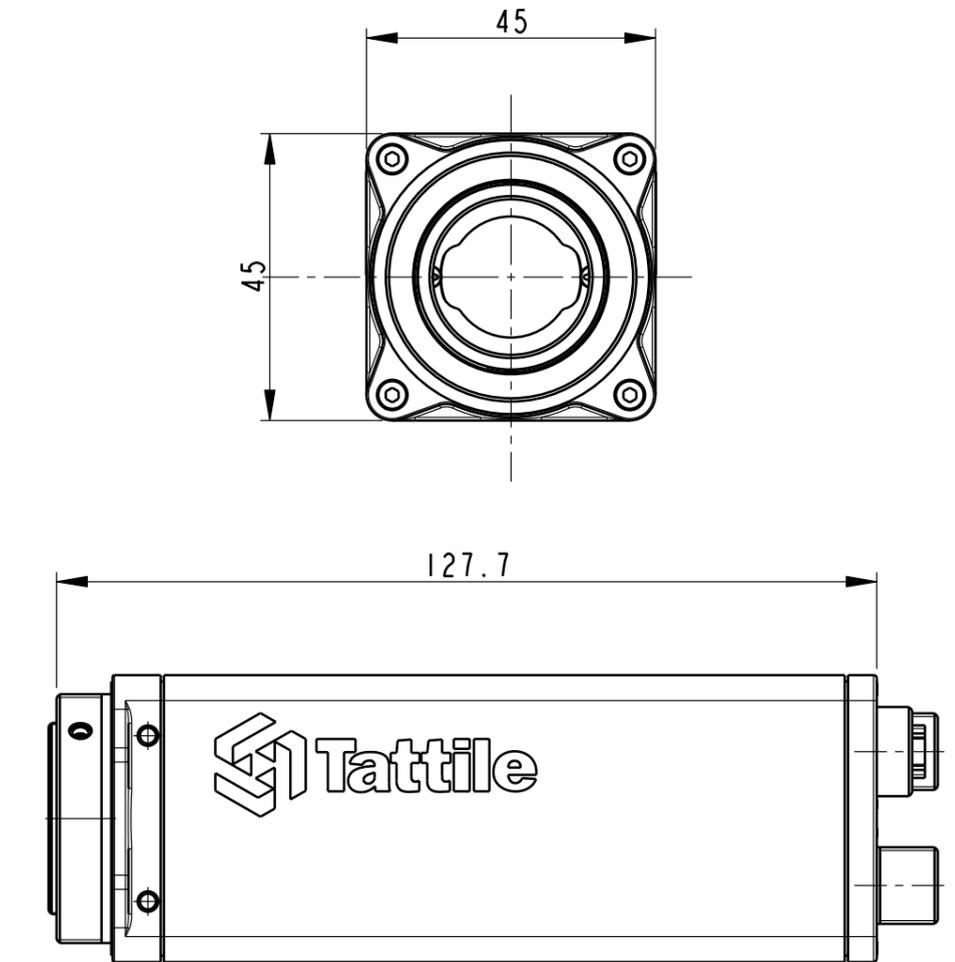
S100 Series

Compact Smart Camera

Custom Vision Solutions

High Performance: Dual Core Cortex-A9 processor and Xilinx FPGA

IP-67 Rated enclosure

Programmable FPGA for image acquisition and preprocessing

Multiple resolution: VGA, 2 and 4 Megapixels global shutter CMOS image sensor

Compact size: only 45x45x41 mm

Open system with Linux O.S.

High speed acquisition: up to 250 fps for VGA resolution

Complete interface and communication capabilities: Gigabit Ethernet, digital I/O, RS232/485 serial ports

High-Speed acqusition

The S100 allows high-speed acquisition, from 250 Fps for VGA sensor up to 35 Fps for 4 megapixels sensor.
The frame rate of the camera can be further increased thanks to the windowing features: capturing only a portion of the sensor allows higher frame rates for smallest regions of interest.

FPGA

The image acquisition and image preprocessing are performed by dedicated FPGA in real time.
Using graphical tool, it is possible to progam the FPGA for image preprocessing.

Interface and Communication

The integration of the S100 Smart Camera is made easy by the full-featured set of interfaces available: Gigabit Ethernet, RS232, RS485, 2 inputs, 2 outputs, 2 strobe outputs.

Architecture

The S100 Smart Camera features a Dual Core Cortex-A9 800MHz CPU and an Xilinx Artix 28K Logic Cells FPGA working closely together.
Thanks to Tattile's technology based on FPGA, this smart camera can guarantee the real-time execution of critical functions such as image capture, image pre-processing, and I/O.

Compact size

Thanks to its compact size, it can be easily integrated into any machine and production line.

Open System

Thanks to the use of Linux O.S., it is possible to develop Vision Application with Tattile software or third parties library / software.

IP-67

IP-67rated housing of S100 Smart Camera allows the installation even in harsh environment.

S50 Series

Compact Smart Camera
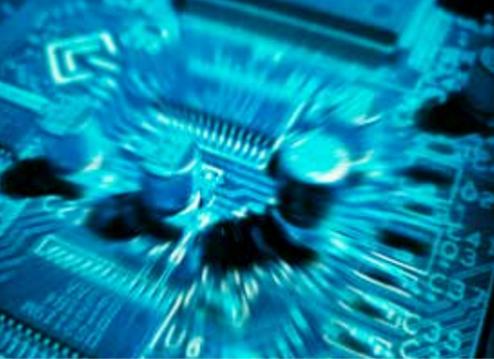
Best Performance: Single Core Cortex-A9 processor and Xilinx FPGA

VGA global shutter CMOS image sensor

IP-67 Rated enclosure

Compact size: only 45x45x41 mm

Open system with Linux O.S.

Complete interface and communication capabilities: Gigabit Ethernet, digital I/O, RS232/485 serial ports

Smart solution

With a VGA resolution and a speed of 120 frame per second, S50 Smart Camera is suitable for all vision system application.
The frame rate of the camera can be further increased thanks to the windowing features: capturing only a portion of the sensor allows higher frame rates for smallest regions of interest.

FPGA

The image acquisition and image preprocessing are performed by dedicated FPGA in real time.

Open System

Thanks to the use of Linux O.S., it is possible to develop Vision Application with Tattile software or third parties library / software.

Architecture

The S50 Smart Camera features a Single Core Cortex-A9 800MHz CPU and an Xilinx Artix 28K Logic Cells FPGA. Thanks to Tattile's technology based on FPGA, this smart camera can guarantee the real-time execution of critical functions such as image capture, image preprocessing, and I/O.

IP-67

The IP-67 rated housing of S50 Smart Camera allows the installation even in harsh environment.

Interface and Communication

The integration of the S50 Smart Camera is made easy by the full-featured set of interfaces available: Gigabit Ethernet, RS232, RS485, 2 inputs, 2 outputs, 2 strobe outputs.

Compact size

Thanks to its compact size, it can be easily integrated into any machine and production line.

Compact Smart Camera

C-mount lens   Compact size

Gigabit Ethernet

Illumination

Power supply
digital I/O
RS232/485
strobe

IP67-rated

Technical Data

Device	S50	S110	S120	S130
Resolution	640x480	640x480	2048x1024	2048x2048
Frame rate	120 fps	250 fps	70 fps	35 fps
Sensor type	1/3" CMOS	1/3" CMOS	2/3" CMOS	1" CMOS
Sensor model	CMV300	CMV300	CMV2000	CMV4000
CPU	Single Core ARM Cortex-A9 800MHz	Dual Core ARM Cortex-A9 800MHz		
System RAM	512 MB			
Flash Memory	Secure Digital 8 GB (up to 32 GB)			
FPGA	Xilinx Artix-7 28K LEs			
Lighting direct channel	2			
Strobe output	2			
Digital inputs	2			
Digital outputs	2 PNP			
LAN	Gigabit Ethernet			
Serial port	RS232-RS485			
Internal Protection	IP67			
Lens	C-mount			
Operating system	Linux			
Power supply	24 VDC			
Power consumption	4.5 W			

Part Numbers

F01623	S50 Smart Camera 640X480 Mono
F01624	S50 Smart Camera 640X480 Color
F01616	S100 Smart Camera 640X480 Mono
F01617	S110 Smart Camera 640X480 Color

F01618	S120 Smart Camera 2048X1088 Mono
F01619	S120 Smart Camera 2048X1088 Color
F01620	S130 Smart Camera 2048X2048 Mono
F01621	S130 Smart Camera 2048X2048 Color

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41
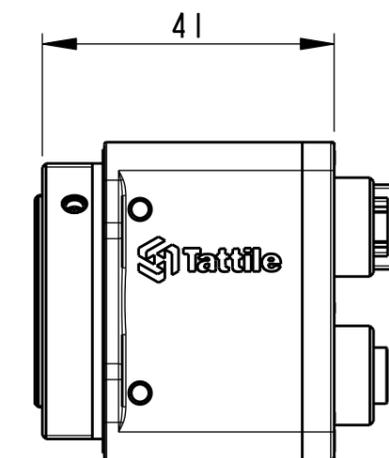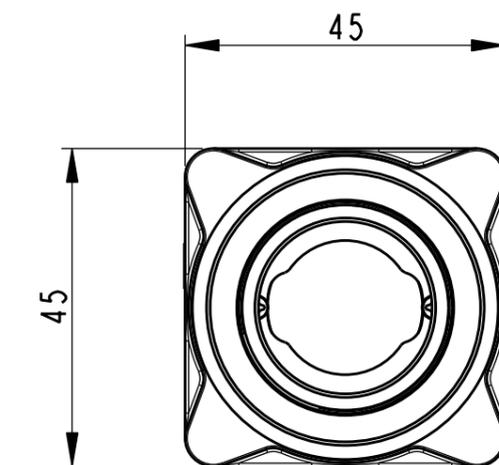
Tattile srl
Via Gaetano Donizetti, 1
25030 Mairano (BS) Italy
Tel. +39 030 97000
Fax. +39 030 97001
infoindustrial@tattile.com
www.tattile.com

Tattile
Custom Vision Solutions