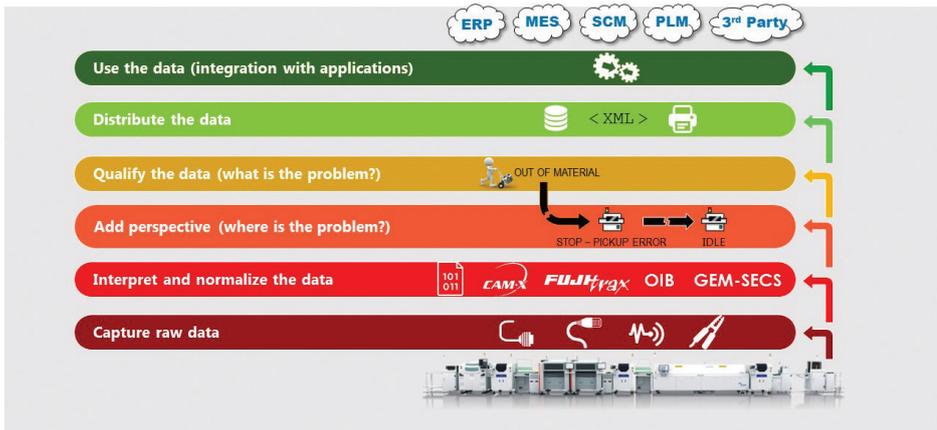


Valor IoT Manufacturing

Giving you access to data from all machines and processes on the shop floor



The Valor IoT Manufacturing solution enables full data flow using the OML neutralized standard between the shop floor and in-house applications in a simple unified way that reduces time and effort.

Introduction

The Valor Internet of Things (IoT) Manufacturing solution gathers live information from every process or machine in the shop floor by combining data acquisition and normalization in a single piece of hardware. The collected data is normalized and enriched to a single standardized specification, the Open Manufacturing Language (OML).

The Valor IoT Manufacturing system includes software with built-in interfaces to work with SMT, test, and inspection machines that, provides easy "plug-and-play" connection to every machine on the shop floor regardless of the machine type, vendor, or protocol.

Valor IoT Manufacturing provides an informative view of the equipment, line, and the entire factory, including bottleneck identification based on predefined KPIs. Using the OML Software Development kit (SDK) provided with the Valor IoT Manufacturing solution, realtime manufacturing data in OML format can then be used by company in-house applications and third-party solutions to create a full data flow between the shop floor and enterprise systems.

Benefits

- Enables manufacturing insights by providing access to data from all machines and processes on the shop floor.
- Maximizes data flow efficiency through automatic neutralization of all acquired data from the shop floor.
- Increases machine utilization by automatically identifying bottlenecks based on predefined KPIs.
- Helps to meet industry standards and customer compliance demands by collecting accurate, real-time data at the machine level.
- Provides insight into the factory performance with an intuitive dashboard.
- Automatically supports all SMT machines, as well as other forms of assembly and processes.

An IoT Network Made Possible

Installing the Valor IoT solution is an easy method to replace the complex PC-based systems on the shop floor. Simply plugged in, the box is a computer that is capable of monitoring and controlling factory machines and processes, as well as analyzing manufacturing data in real time or during post-production.

Two types of boxes are used in the system:

- The Valor Data Acquisition Unit (DAU) box can connect to any machine that has a built-in machine interface and various -input-output (I/O) devices to control and monitor the conveyor. Data is collected and neutralized into OML.
- The Valor System Processing Unit (SPU) box is connected to all the DAU boxes and processes for a specific line, which enables identification of the bottleneck machine that are causing production delays and the application of routing rules and chain traces.

Valor IoT MANUFACTURING	System Processing Unit (SPU)	Data Acquisition Unit (DAU)
Appearance		
Color	Black	Grey
Dimensions (W × D × H)	215 × 140 × 79 (mm)	200 × 140 × 85 (mm)
Weight	2.2 kg	2.1 kg
CPU	Intel® Celeron® J1900 on-board SoC (2 GHz, quad-core, 2 MB cache, TDP = 10 W)	Intel® Celeron® N2807 on-board SoC (1.58 GHz, dual-core, 2 MB cache, TDP = 4.3 W)
System Memory	Support 204-pin 1066/1333 MHz DDR3 SO-DIMM slot × 1 Default RAM 8 GB pre-installed	Support 204-pin 1066/1333 MHz DDR3 SO-DIMM slot × 1 Default RAM 4 GB pre-installed (up to 4 GB)
Storage	Default 32 GB mSATA pre-installed in mini-PCIe slot + 1 mini-PCIe slot reserved	
LAN	6x (10/100 Base-T), 3x PoE SE	2x (10/100 Base-T); 2x PoE SE
COM	No	x2 RS-232 optically isolated with independent 12-V power for peripherals
USB	X2, 1 USB3	2 USB , 1 USB3
Inputs/Outputs	No	6 in/6 out, optically isolated
System Status Indicators (Front)	Programmable OLED display	HDD LED green Error LED red Status LED blue
Regulatory Approvals	EMC: CE (EN55022 Class A, EN55024) FCC (Part 15 Subpart A) Conducted EMI CISPR/FCC Class B ROHS II directive (2011/65/EC)	

Specifications for the two types of network boxes used by the Valor Internet of Things Manufacturing (IoT) solution: the Data Acquisition Unit (DAU) and the System Processing Unit (SPU).

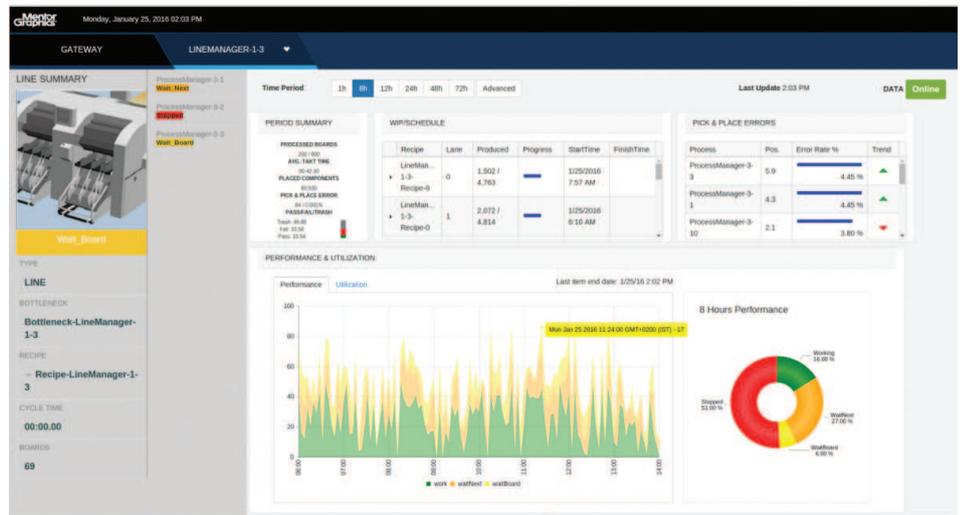
Automatic, Seamless Data Collection

The Valor IoT solution supports all types of machines and processes, including SMT, printers, test, and inspection to enable efficient collection and transformation of manufacturing data to business and management systems. The collected data is normalized into OML to simplify the data-acquisition flow and allow a more efficient delivery and use of that data later on. Using the DAU boxes, data can be collected regardless of the machine vendor and its communication protocol to provide full insight into the factory performance.

Intuitive Performance-Focused Dashboards

The Valor IoT Manufacturing solution includes a performance-focused dashboard that provides insights at the process, line, and factory level. The process-level data includes real-time information on the number of placed components per hour and pickup errors. Work-in-progress (WIP) data collected by the Valor IoT Manufacturing boxes can also be shown on a personal digital assistance (PDA) or in any third-party web interface. WIP data includes work orders and data on operations, machines, programs, and processes, including the number of units produced.

The line-level dashboard displays information about line performance, which machines are creating bottlenecks, pickup information by line, and WIP by line, while supporting multiple work orders. The factory-line dashboard acts as a global performance monitor showing global WIP. By identifying the machines creating bottlenecks that cause delays in production, the operator can make the alternation when possible and reduce cycle time.



Performance-based dashboards showing information per machine, line, or factory level, including period summary, amount of pick-and-place errors, and general machine information.

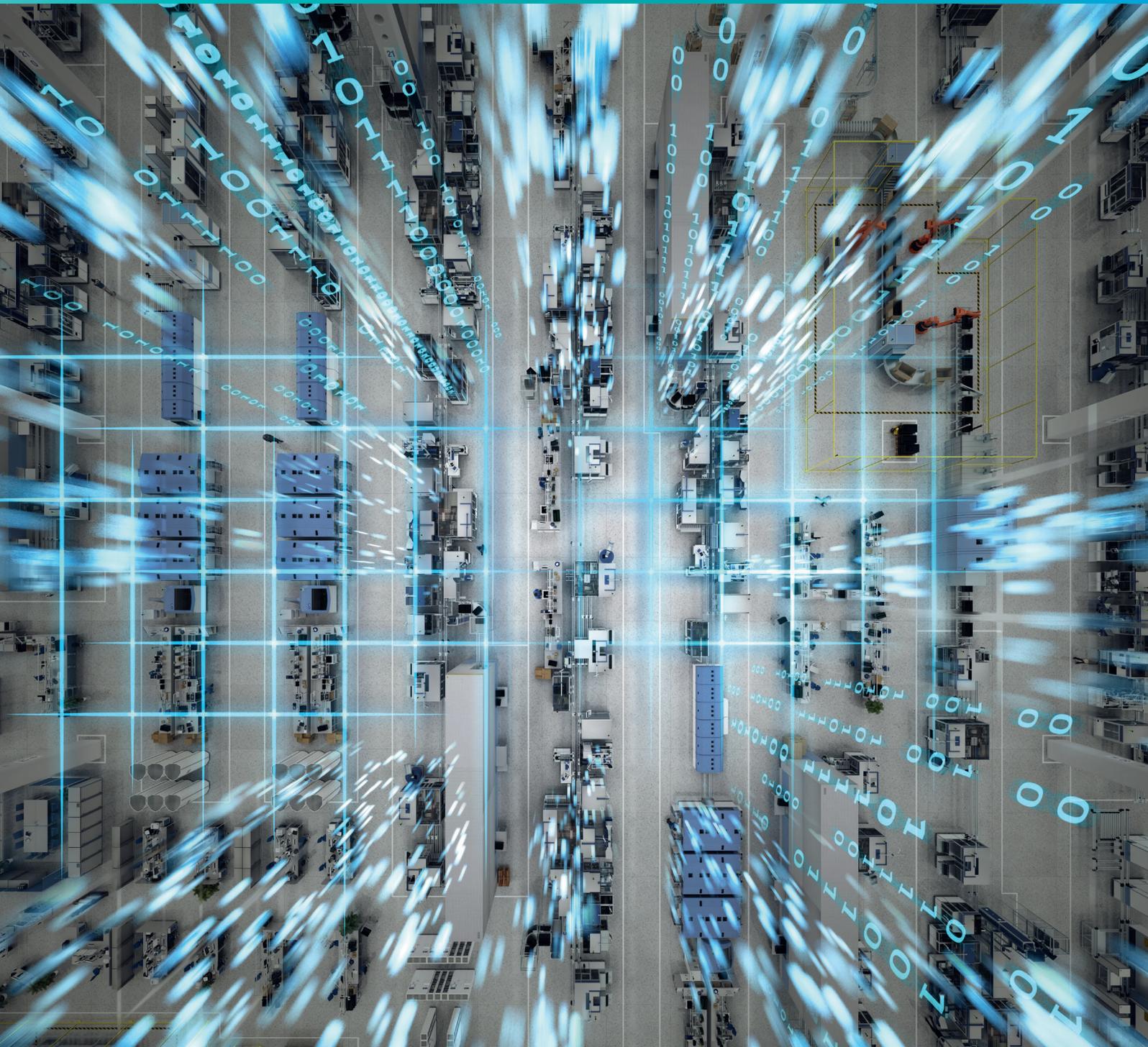
Infrastructure and Supported Drivers

Both the SPU and the DAU include a Linux operating system, drivers, and a software components infrastructure. Valor IoT Manufacturing includes support for critical operations through the SMT manufacturing process. PCB registration, screen printing, solder paste inspection (SPI), glue dispensing, automated optical inspection (AOI), axial/radial PTH, ODD form placement, in-circuit test (ICT), flying probe test (FPT), functional testing, and coating are all supported.

Valor IoT Manufacturing is flexible to fit a manufacturer's individual needs, allowing the addition of processes as required using the software development kit (SDK).

Easy-to-Use SDK

The Valor IoT Manufacturing solution's binary SDK can be used to access information from the factory gateway, using .Net DLL or Java JAR. This simple method allows for the development of in-house communication protocols to achieve machine-to-machine communication and to create drivers that will communicate with other applications such as ERP, SCM, etc., allowing for full data flow all the way from the shop floor to enterprise systems.



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