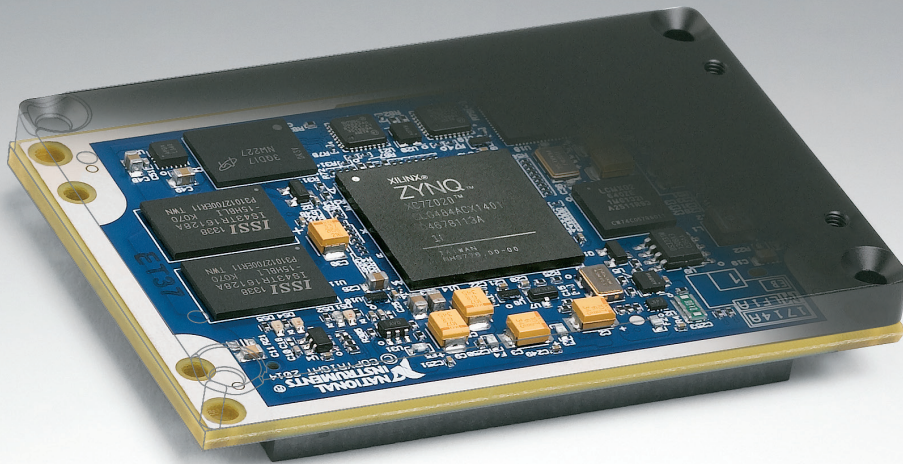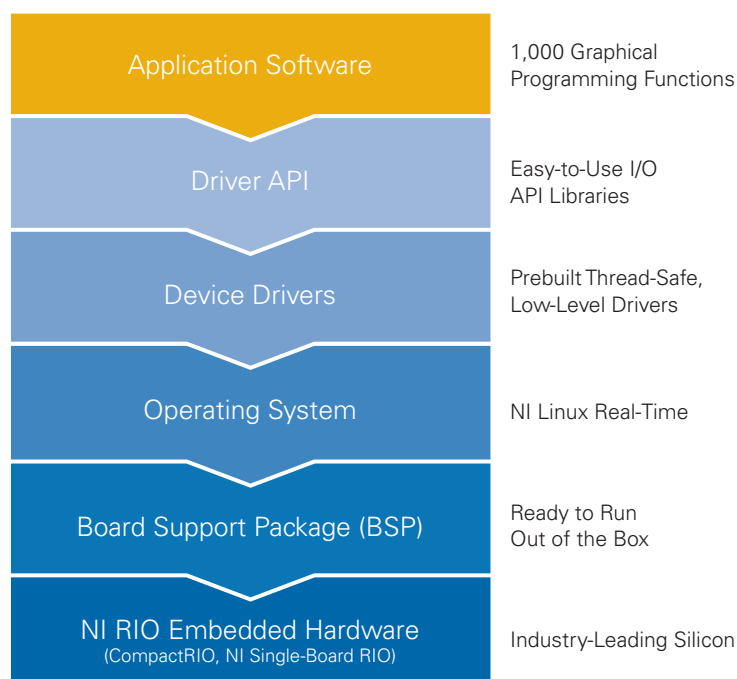# NI System on Module

The NI sbRIO-9651 System on Module (SOM), based on the Xilinx Zynq All Programmable SoC, combines a fully tested and validated hardware design with a complete middleware solution and NI Linux Real-Time OS. This combination significantly reduces your development time, design risk, and time to market. The NI SOM also provides an alternative to hardware description languages (HDLs) that simplifies the task of interfacing to I/O and communicating data.

NATIONAL INSTRUMENTS™

Key Features and Benefits

Unlike other SOMs, which offer limited deployment-ready software, the NI SOM integrates a validated board support package (BSP) and device drivers with the NI Linux Real-Time OS. As an alternative to HDLs, NI LabVIEW system design software provides a graphical development environment with thousands of functions and IP blocks for both processor and FPGA logic development.

- NI SOM with an integrated and fully validated middleware solution saves design time and risk
- Graphical development platform eliminates the need for HDL expertise to leverage reconfigurable hardware
- NI Linux Real-Time integrates the performance of an RTOS with the openness and community of Linux
- Designed, tested, and validated device for reliable long-term deployment and industrial applications
- Industrial-grade Zynq-7020 All Programmable SoC
- Integrated heat spreader provides a simplified connection to a thermal solution
- Development kit features a reference carrier board and design files for reuse

LabVIEW and Middleware

Application Software	1,000 Graphical Programming Functions
Driver API	Easy-to-Use I/O API Libraries
Device Drivers	Prebuilt Thread-Safe, Low-Level Drivers
Operating System	NI Linux Real-Time
Board Support Package (BSP)	Ready to Run Out of the Box
NI RIO Embedded Hardware (CompactRIO, NI Single-Board RIO)	Industry-Leading Silicon

Specifications

Processor SoC
Xilinx Zynq-7020
667 MHz Dual-Core ARM Cortex-A9
Artix-7 FPGA Fabric

Size and Power
50.8 mm x 78.2 mm (2 in. x 3 in.)
Typical Power: 3 W to 5 W

Dedicated Processor I/O
Gigabit Ethernet, USB 2.0 Host, USB 2.0 Host/Device, SDHC, RS232 TX/RX

Memory
Nonvolatile: 512 MB
DRAM: 512 MB

Operating Temperature
-40 ˚C to 85 ˚C Local Ambient

FPGA I/O
160 Single-Ended FPGA I/O
Configurable Peripherals: Gigabit Ethernet, RS232 x3, RS485 x2, CAN x2