Embedded PLC

Application Kit

Key Features

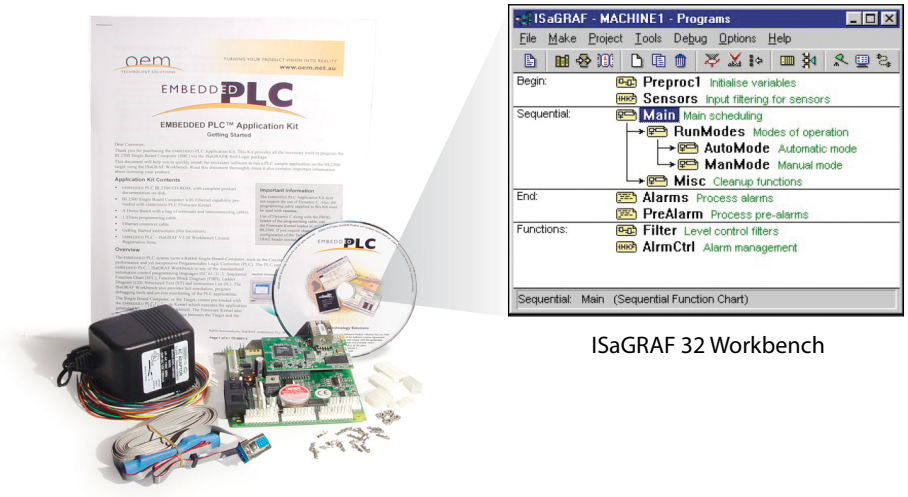
- An ISaGRAF 32 I/O V3.50 Workbench
- A fully featured BL2500
- Embedded PLC Kernel for BL2500
- Prototyping wires, connectors and terminals
- Programming cable and documentation

ISaGRAF V3.50 supports the following industrial programming languages

- Sequential Function Chart (SFC)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Structured Text (ST)
- Instruction List (IL)
- Flow Chart (FC)

Applications

- Factory automation
- Motion control
- Process control
- Distributed control systems
- Complex networking



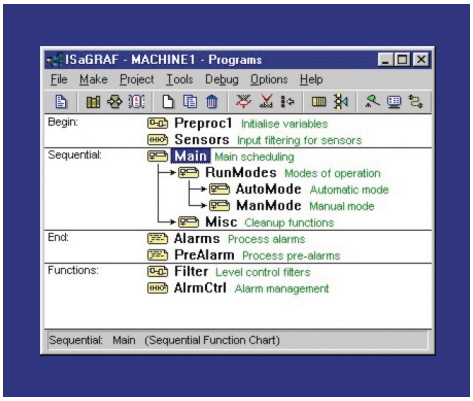
ISaGRAF 32 Workbench

The Embedded PLC Application Kit enables a Rabbit 3000 based single-board computer to be programmed via the Programmable Logic Controller (PLC) international programming standard IEC61131-3.

A programmable logic controller (PLC) is a small embedded computer used for automation of real-world processes, such as control of machinery on factory assembly lines. The program controls the complex sequences required in modern manufaturing automation.

The Embedded PLC executes all of the IEC61131-3 programming languages plus Flow Charts. The developer writes these programs via the ISaGRAF V3.50 Workbench (32 I/O package included). The Embedded PLC Application Kit gives you everything you need to get started programming a Rabbit Semiconductor SBC with the ISaGRAF PLC programming system.

The Embedded PLC Application Kit is powered by the BL2500, an advanced single-board computer that incorporates flash memory, SRAM, digital I/O ports, A/D converter inputs, RS-232/RS-485 ports and Ethernet interface (10/100 Mbps). The BL2500 single-board computer gives PLC designers extremely low-cost embedded control for high-volume applications such as product control, factory equipment control, access control, HVAC, and vending machines. The BL2500's compact board size of 100 x 100 mm is easily mountable in standard 100 mm DIN rail trays. External connections via polarized locking industry standard Molex® type connectors enable rapid assembly with wire harnesses.



ISaGRAF 32 Workbench

BL2500 Single-Board Computer

Embedded PLC Application Kit

Embedded PLC Application Kit Specifications	
Application Kit Contents	• BL2500 with 10/100BaseT, 512K Flash, 256K + 512K SRAM, 44.2 MHz clock (Rabbit Semiconductor P/N: 101-0602) • ISaGRAF V3.50 32 I/O Workbench • Embedded PLC Kernel for the BL2500 • BL2500 Prototyping Board and interfacing cables • ISaGRAF Programming Cable • User Documentation
I/Os supported	• 16 Digital Inputs • 8 Digital Sinking Outputs • 1 Analogue Input (connected through AD0): 10 bits resolution, 0 - 3.3V • 1 Analogue Output (connected through DA1): 10 bits resolution, 0 - 3.3V For further details, refer to the BL2500 technical specification.

Communications	• Communication parameters are configurable using the Embedded PLC Utility for the Rabbit Processor
	• Modbus TCP (using static IP address)
	• Modbus RTU over RS-232 (using BL2500 serial port E)
	• Modbus RTU over RS-485 (two-wire mode, using BL2500 serial port D)
	• Modbus RTU serial communication configuration (fixed):
	  • Baud rate: 19200 or 9600
	  • Parity: None
	  • Data bits: 8
	  • Stop bits: 1
	  • Flow control: None

Performance:	• Digital Inputs scan time = 200 µsec • Analogue Input scan time = 83 msec • Digital Output update time = 30 µsec per output • Analogue Output update time = 120 µsec • Boolean instruction = 30 µse • Program execution overhead = 100 µsec per program
Memory space	• Maximum size of the ISaGRAF application database is 50000 bytes. • Size of ISaGRAF real-time database (holds variables, SFC engine data) is 10000 bytes • Free root memory is approximately 9000 bytes • Embedded PLC kernel code size is approximately 260000 bytes
Development Kit Part Number	$599 U.S. 101-1108 Int'l 101-1109

BL2500 Specifications & Features	
FEATURE	BL2500
Microprocessor	Rabbit 3000 at 29.4 MHz
Ethernet Port	10Base-T, RJ-45 (standard)
Flash Memory	256K (standard)
SRAM	128K (standard)
LEDs	4, user-programmable
Digital Inputs	16: 15 protected to ±36 V DC, 1 protected to +5 –36V; threshold is 1.5 V nom.
Digital Outputs	8, sink up to 200 mA each, 36 V DC max. standoff voltage
Analog Inputs	One 10-bit resolution, 8-bit accuracy, input range 0.1–3.1 V, 10 samples/s
Analog Outputs	Two 9-bit PWM, 0.1–3.1 V DC, 17ms settling time
Serial Ports	6 serial ports: • 1 RS-485 • 2 RS-232 or 1 RS-232 (with CTS/RTS) • 1 CMOS level asynchronous or clocked serial port • 1 expansion serial port multiplexed to two RS-422 clocked SPI ports • 1 CMOS compatible serial port for programming/debug

RABBIT Semiconductor

Rabbit Semiconductor, Inc. 2900 Spafford Street Davis, CA 95616 USA Tel 530.757.8400 Fax 530.757.8402