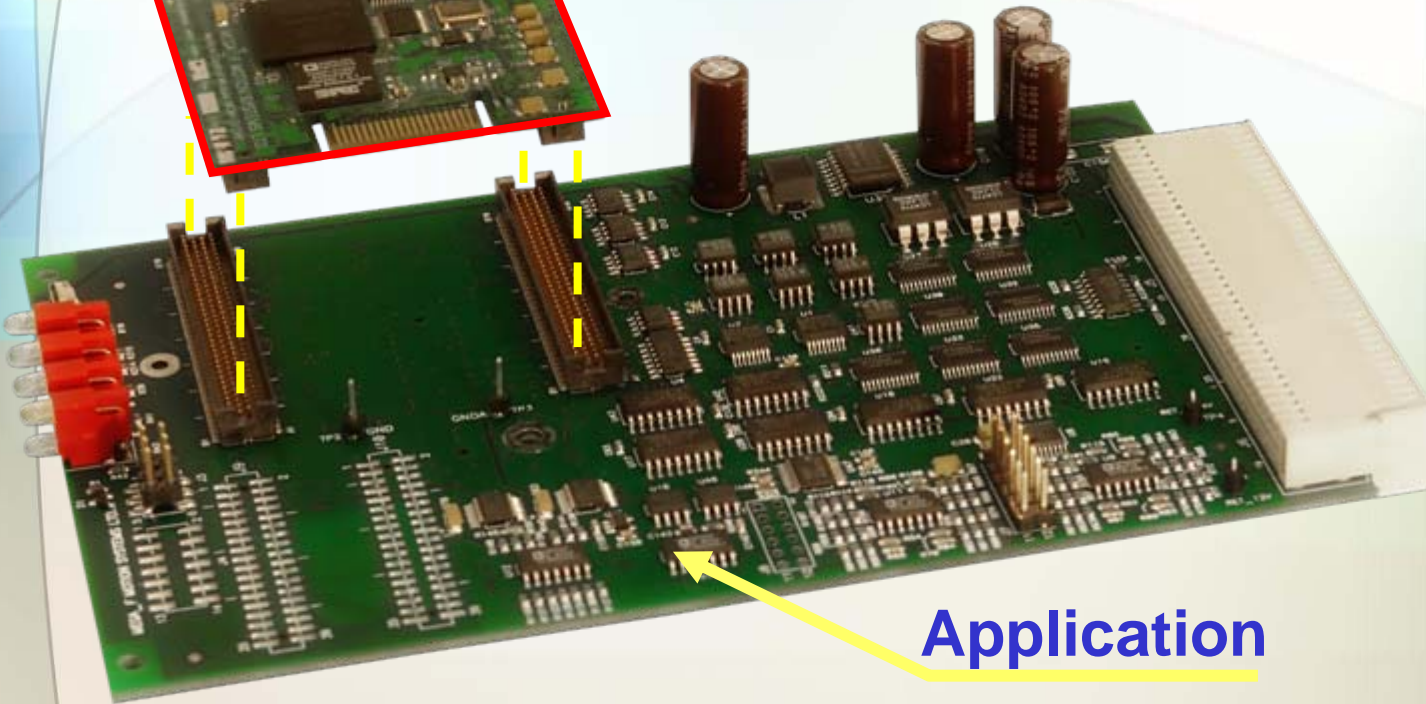


Any Spec Off-the-Shelf

MAC-3xx Core



333MHz (3ns) ADSP-21362 SHARC DSP
2.0 GigaFLOP's, **SIMD** Core
IEEE-compatible 32-bit floating-point,
40-bit extended floating-point
64 bit memory mapping format
80 bit MAC Instructions
200 MHz, 12K FPGA (CYCLONE)



Application

- We see in Each System 2 parts: Core and Application
- The Core is the Brain of the System, The other part of the system is Application
- The Core is the Sophisticated part, Application is a simple, trivial part
- The Core is "Off-The-Shelf" part, Application is Variable, System Specific part
- To create a new system the only design required is the design of the simple part,
The Complicated part is Ready, "Off-The-Shelf"
- This part is supported by the Mega_FUVg WizAlg – Outstanding Development,
Analyzing and Monitoring Tools

As the result, we deliver any customized SPEC

"Off-the-Shelf"

Sub-Nano Precision

MAC-3xx Computing Core

6+ axis Linear or Rotary DCBL motors
6 Analog Sine-Cosine and 4 digital AqB encoders

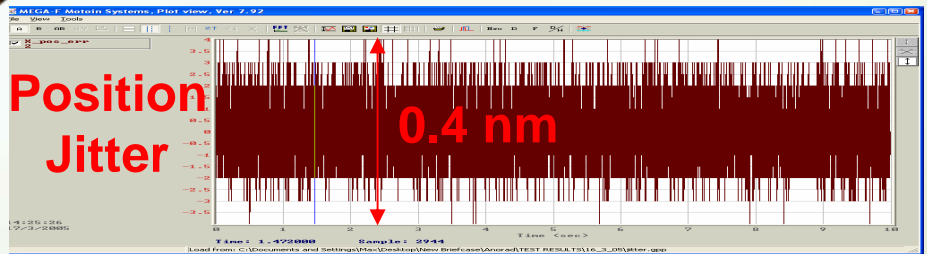
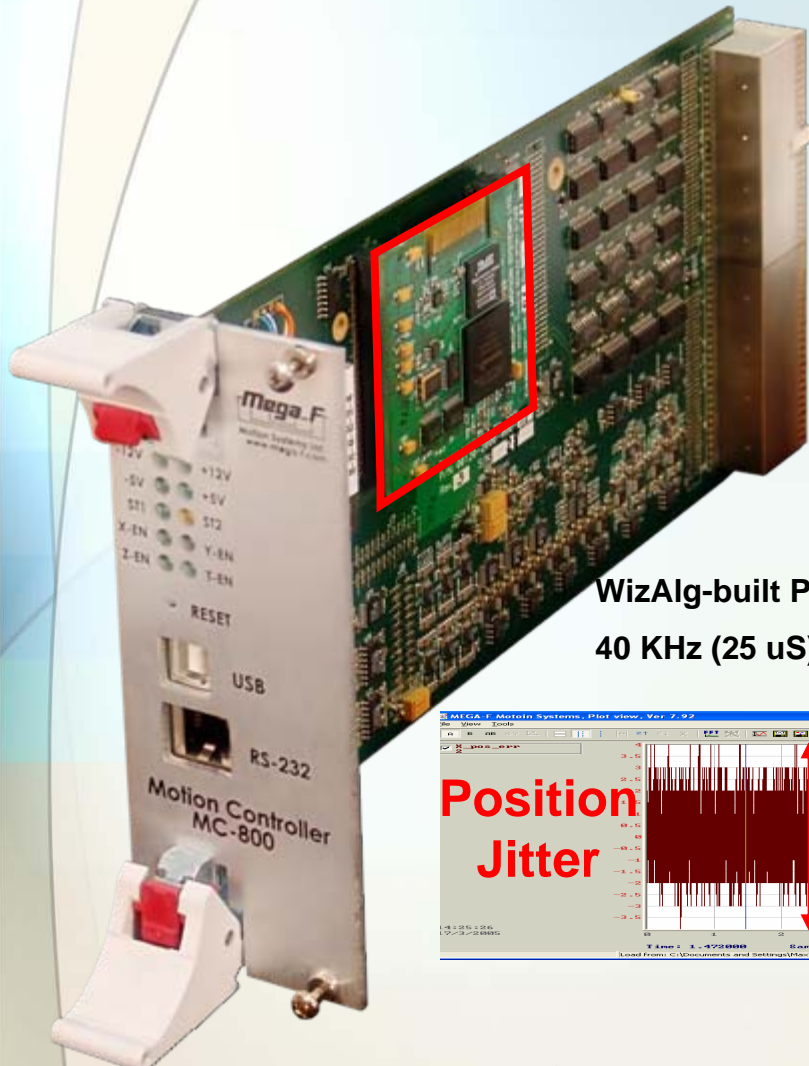
Up to 50,000 Interpolation Factor

2 per axis 16 bit differential analog commands outputs

Ethernet and USB/RS422 Interfaces

WizAlg-built Proprietary Dual Loop Control Algorithms

40 KHz (25 uS) Total Sample Rate

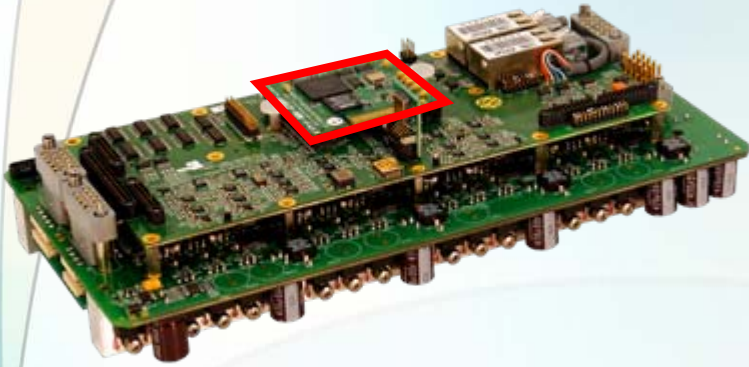


3-Phase **LINEAR** DCBL Drives Family

Power Bus	60V (100V option)
Continuous Phase Current	5A, 2.5A, 1.5A
Peak Phase Current	30A, 15A, 8A
Current Loop Bandwidth	3 – 5 KHz adj.
Protection	SOA, Over-current, Shorts, Over/Under voltage
SNR	> 80 db



Gyro-INS Stabilization



High Current Solenoid Drives and Voltage Converters,

2 x Ethernet, 4 x RS422 Interfaces,

HW and SW REDUNDANCY for safety critical paths, extended BIT,

Proprietary WizAlg-made Motion and Stabilization Algorithms

Single MAC-3xx Computing Core, Built-In MEMS Gyro and Tilt devices, Interfaces to external FOG, MEMS and INS devices,

Built-In

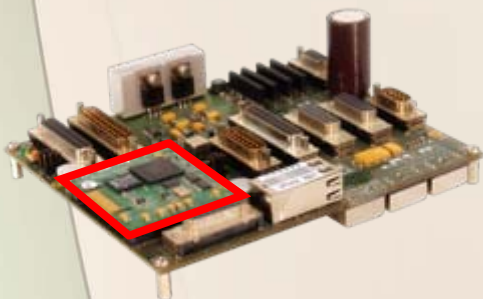
4 x DCBL drives @ 11A,
2 x DC Brush drives @ 6A,
Digital Current Loops,

Analog Sine-Cosine encoders @ 8,000 interpolation,
Digital A quad B encoders



High accuracy Interfaces to external FOGS, MEMS and mechanics Gyro
Built-In Gyro drive

4-axis motor control interfaces,
Resolvers Feedbacks



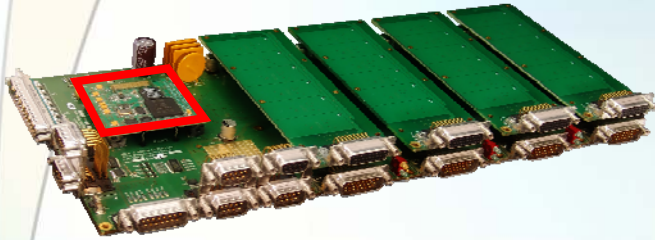
High accuracy Interfaces to external FOGS and INS devices
Hydraulics Power control via Linear valves actuators and 2-phase AC Induction motor

Built-In Power Drives

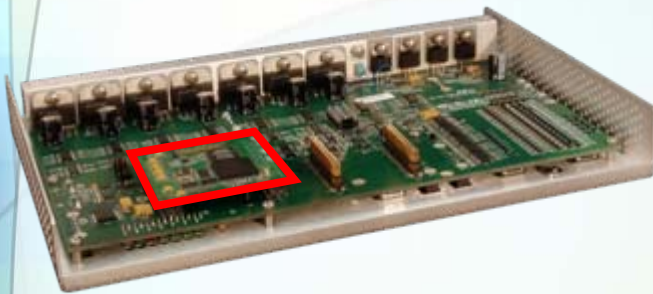
Resolvers, Encoders and Tacho Feedbacks

Single MAC-3xx Core performs the works

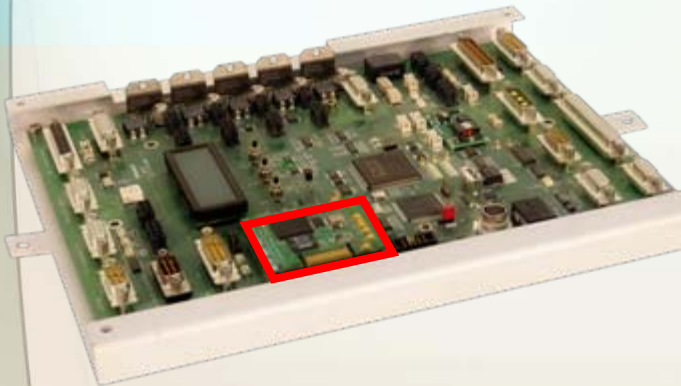
Built-In Motor Drives



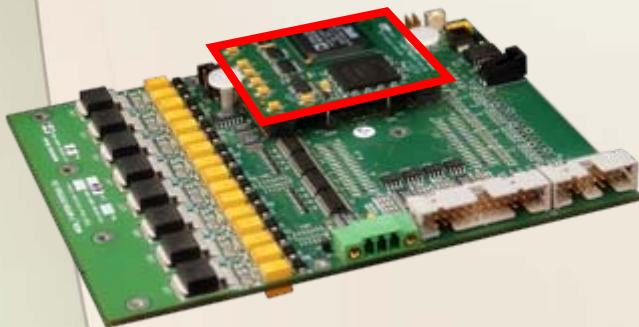
Built-In drives for 25-Axis micro-step motors
25-axis Simultaneous Vector Control
@ 20 KHz Total Sample Rate
Dedicated per axis and general I/O's,
Two @ RS-422 interfaces
24VDC Single PS, extended BIT



Built-In 7-axis @ 3/6A DC Drives,
one axes @ 8/15 DC Drive,
8 AqB encoders interfaces, fault protected
20 @ 1A Solenoid Drives, short protected,
Dedicated per axis and general I/O's,
2 channels USB interfaces,
Extended Built-In-Test BIT
H/W Protection for safety critical tasks



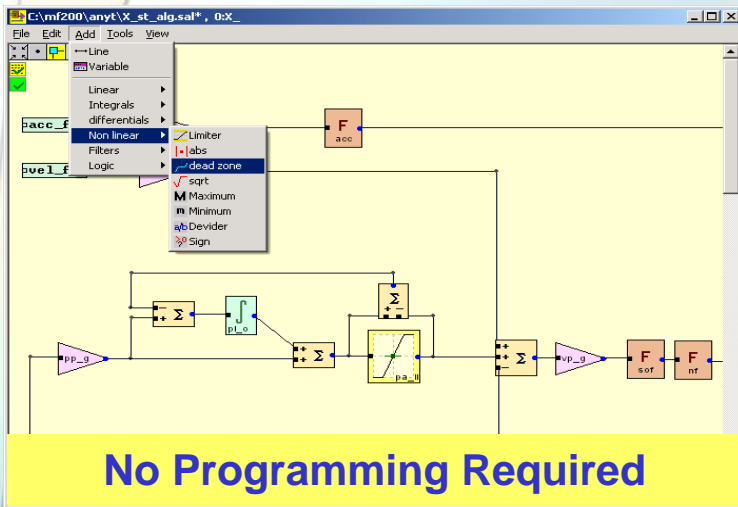
7-axis system on a single board with
external high power drive,
Built-In 6 x 150W PWM drives,
Solenoid drives,
8 x A quad B encoders,
Digital and Analog I/O's, LCD display,
DC/DC converters and Field connectors.



Built-In 8-axis DCBL Drives @ 0.3A
Sensorless Commutation
Dedicated per axis and General I/O's
Extension to 16- and 24-axis
USB and RS-422 interfaces

Common Features: **20 KHz Total Sample Rate**
Advanced Close Loop Algorithms
PLC Functionality
Extended BIT and Protection
Ethernet, USB, CAN, RS Interfaces

WizAlg - Servo Loops at a Glance



WizAlg Algorithms Development

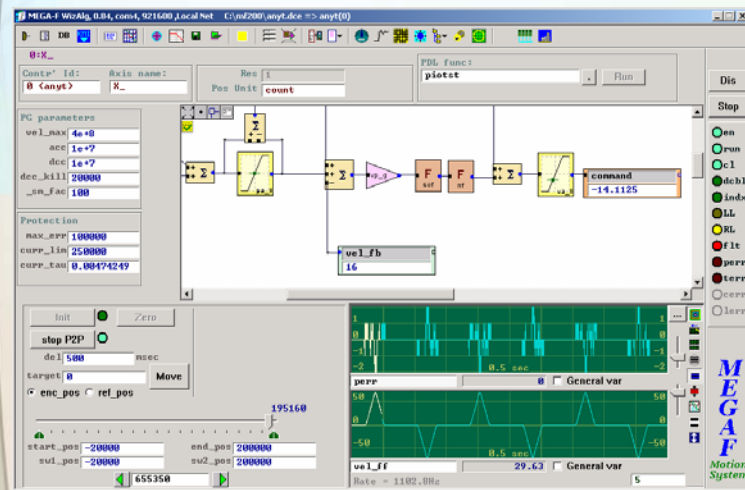
Choose <Add> in the top menu,

Pick and place the desired blocks

Connect the blocks by lines,

Press F7 for compiling,

Choose <Tools>, <Load to Controller> to load the new Algorithm to the controller memory



WizAlg System Monitoring

Configuration and Tuning

Real time access Block Diagrams,

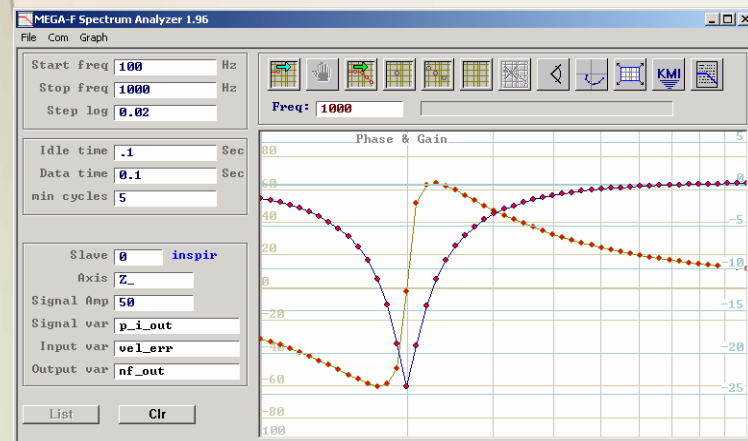
Real Time Scope,

Bode-Nichols-Nyquist tools,

FFT and Statistic analyses,

Source Level Debugger for in-site process programs,

Host-System logger



WizAlg Frequency Analyzer

Bode-Nichols-Nyquist Plots for any System Parts,

Gain-Phase Margins,

Filters Building Tools

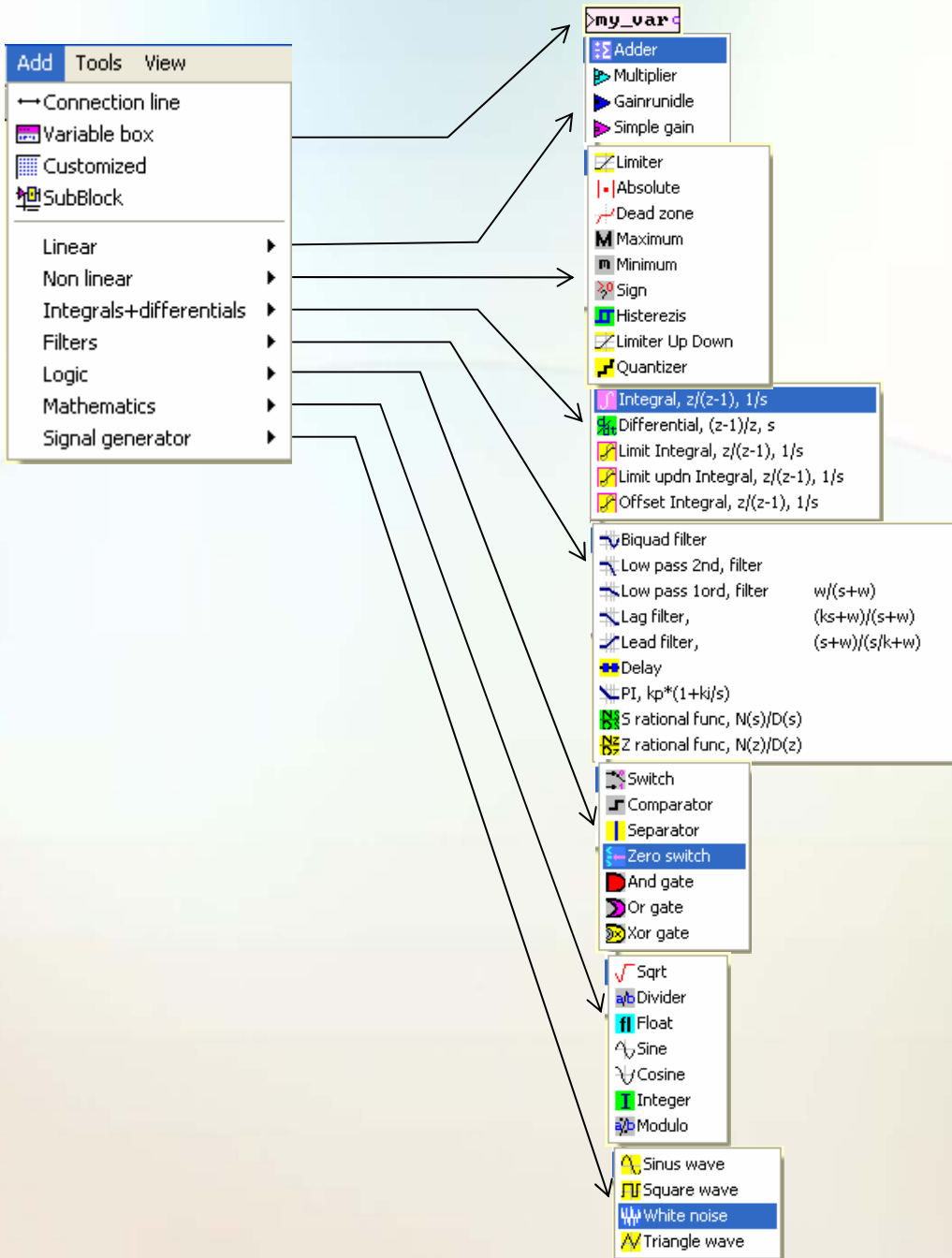
Bi-Quad Filters Tools

S- and Z-domain Polynomials

MAC-3xx & WizAlg:

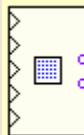
Putting Customized On-the-Shelf

WizAlg - Alg Blocks List



46 Powerful Algorithmic Blocks

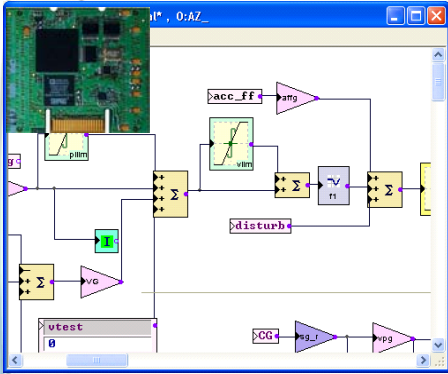
Plus



C-programming Custom Block

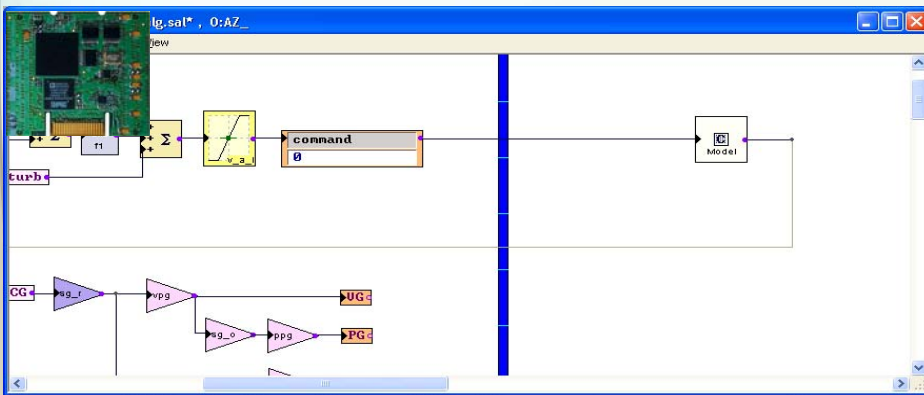
WizAlg Applications

WizAlg in Real Control



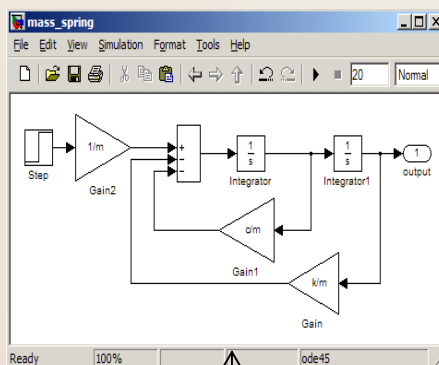
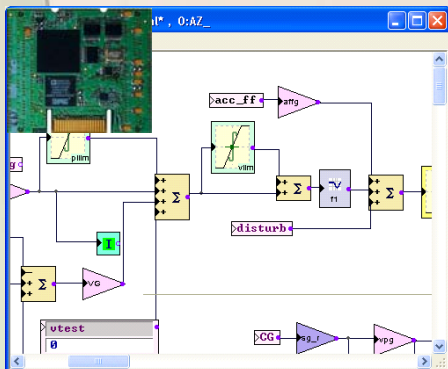
Real Plant Operation:
 Algorithm: MAC-3 & WizAlg
 Plant: Real Equipment

WizAlg both for Control and Plant Simulation



Fast Simulation:
 Algorithm: MAC-3 & WizAlg
 Plant Model: the same MAC-3 & WizAlg

WizAlg and Simulink working together



WizAlg and Simulink:
 Algorithm: MAC-3 & WizAlg
 Plant Model: Simulink

← USB, Ethernet, more