Organization Presentation

Sculpting Pure

Real-Time, Embedded and
DAS Projects and Services

….. In perfect consonance, Symmetrically!

It is the Sculptor who makes the Difference… Not the tools nor the stone chosen!

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Visit us at: www.symmtech.com

One Stop Real Time System Integrator With Software Development and Services
About Symmetric

- Builds strong AP's for integration: Alphi, Pacific, Apollotek, Hybricon
- Products Release thrust Given: SymIS and PEDAS
- Completed 92 Consultancy works both domestic and overseas
- Prides as Strong System Integrator with Development and Service Portfolios
- Synergizes all three functions through QI DS Approach
- Started as Digital India Services Partner
- Operates in Focussed Areas of Software Development and Services
- Expands into Niche Based Approach for DAS Solutions
- Grows into 50 Members Organization
- Founded in Fall 1994
Real Time Integrated Solutions [RTIS]

- Real Time, Embedded, GCS Applications Development
- Instrumentation, Control and Data Logging Applications
- IVNV and Testing Services

Software Development, Testing and Integration Services

- Integration and Systems Management Services

End to End Products Base

A Totally Integrated Project Engineering Organization!!

“Our La Carte.... LOB Stack...”
“A Fine Balance”

A Totally Integrated Project Engineering Organization!!

Real Time Solutions: Aerospace & Defence

Non Real Time - Industrial System Automation: Manufacturing & Process Industries

Software Development and Testing

Integrated Solutions

Offshore Development and Test Centre
“Our RTIS Face”

Real Time Integrated Solutions [RTIS]

Featured Solutions
- Avionics and Space Instruments
- Telemetry Solutions
- VME/CPCI/PMC Based Solutions
- FPGA and CPLD based Solutions
- Home Grown Integrated Solutions
- Offshore Development

Alliance Partners
- Alphi Technology, USA
- Pacific Instruments, USA
- Apollotek, UK
- Hybricon, USA

Target Segments
- Avionics
- Space
- Telecom
- Medical

Deliverables
- End to end H/W
- BSP/ Device Drivers
- Custom S/W Appln.
- Integration/ ATP

A Totally Integrated Project Engineering Organization !!
“Our ISA Face”

Industrial System Automation [ISA]

Instrumentation, Control and Data Logging Applications

Featured Solutions
- Turnkey Automation
- Productivity Monitoring Solutions
- Home Grown Integrated Solutions
- Machine Vision Solutions
- Offshore Development

Alliance Partners
- Alphi Technology, USA
- Pacific Instruments, USA

Target Segments
- Manufacturing
- Process Industries
- Avionics
- Space

Deliverables
- Base System Plus Logger and Acquisition Hardware
- C/Lab VIEW/SCADA Application Suite
- Integration and ATP

A Totally Integrated Project Engineering Organization!!
“Our Core Competence - SDD”

Software Development Division [SDD]

Featured Solutions
- Software Product Development
- Turkey Software Products
- Home Grown Integrated Solutions
- BSP and Device Driver Development
- FPGA and CPLD based Solutions

Alliance Partners
- Alphi Technology, USA
- Pacific Instruments, USA

Target Segments
- Aerospace Customers
- Manufacturing
- Telecom
- Overseas Mfrers/SIs

Deliverables
- Comprehensive end to end SDLC Dev [SRS to STR]
- Bluebook Based Standard
- Project Management through POMS

Model of Operation
- Turnkey Projects
- Outsourced Product Development
- Offshore Development Center

Our Core Competence - SDD

A Totally Integrated Project Engineering Organization!!
“Our Core Competence – IVNV”

**Software Testing & IVNV [Independent Verification and Validation]**

**Featured Solutions**
- Independent Verification and Validation
- Software Testing
- NRT Testing
- ATEs & Emulators
- Offshore Test Centre

**Alliance Partners**
- Alphi Technology, USA
- Pacific Instruments, USA

**Target Segments**
- Avionics
- Space
- Telecom

**Model of Operation**
- Offshore Test Center- OTC
- Turnkey based Testing services
- Subsystem/ product specific IV&V Testing

**Deliverables**
- Independent project estimate & modeling of project plan
- Periodic status briefings and/or reports
- Clear Bug Reporting Process and Bug Tracking System.
- IV&V Test Summary Reports through STP, STD & STRs.
- Final IVNV Observation Report
- Optional Test Beds for ATEs, HIS, HILLs, etc.
- Periodic Project specific documentation support and adherence

**A Totally Integrated Project Engineering Organization !!**
“Our Building Blocks and Products”

**Featured Solutions**
- Signal Conditioning and DAS
- Rugged Electronics and Packaging Solutions
- MIL Grade and Rugged systems
- cPCI based systems
- Industrial and Panel Systems

**Alliance Partners**
- Alphi Technology, USA
- Pacific Instruments, USA
- Apollotek, UK
- Hybricon, USA

**Target Segments**
- Avionics
- Space
- Telecom
- Manufacturing

**Deliverables**
- Building Blocks as per BOM
- COTS or customized
- System and Interfaces
- Cables and Accessories
- Drivers and Test Application.
### Our Olympic Performance

<table>
<thead>
<tr>
<th>Function</th>
<th>RTIS</th>
<th>ISA</th>
<th>IV&amp;V</th>
<th>ODC</th>
<th>ODIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies</td>
<td>VXSIM, LIBRARIES</td>
<td>AC31</td>
<td>ATAL</td>
<td>DDK, SDK</td>
<td>DAS</td>
</tr>
<tr>
<td>Target Segment</td>
<td>Electronic warfare systems</td>
<td>Software Integration Support</td>
<td>Display software updates and testing</td>
<td>Backup Management system</td>
<td>Itarsi</td>
</tr>
<tr>
<td>Projects Done</td>
<td>Telemetry monitoring software, protocol converter, Bus Analyzer, Fuel Pump test plan Automation, Proxy server</td>
<td>Toyo, HPCL-LT, Mahul-61850, KRL-61850, Doshion, NTP C-dathri</td>
<td>NRT for Air Data System LCA, Engine control system for Kaveri engine, Development of test software to test the IFCS</td>
<td>Sin Guard, Kiosk, Device driver development, RTDT data transfer, Data Guard</td>
<td>Python to IDL, 1553 software porting, Linear Design of KADECS controller, 9355 ISRO</td>
</tr>
<tr>
<td>Skill Set</td>
<td>4+ year of experience Engineers in RTLinux, C, C++, Unix</td>
<td>3+ year of experience Engineers in SCADA, LabVIEW, C</td>
<td>5+ years of experience Engineers in C, C++, C++, Mat lab, Java, .NET, SQL</td>
<td>4+ year of experience Engineers in C, C++, VC++, Java, .NET, SQL</td>
<td>6+ years experience in Linux, Unix, VAX/VMS</td>
</tr>
<tr>
<td>System In Lob</td>
<td>12 years</td>
<td>12 years</td>
<td>15 years</td>
<td>10 years</td>
<td>14 years</td>
</tr>
</tbody>
</table>

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### Our Technologies

- RTIS: VXSIM, LIBRARIES
- ISA: AC31
- IV&V: ATAL
- ODC: DDK, SDK
- ODIC: DAS

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### Our Tools

- RTLinux, C, C++, VC++, FLDK, VMS, Unix, SQL, VxWorks
- SCADA, LabVIEW, C
- C, C++, on VAX/VMS, Mat lab, Simulink, Logiscope, db960
- JAVA, VC++, C, C++, RT Linux, .NET, Unix, SQL, WinCVS, bounce checker, Code flow chart tool
- Linux, Unix, Math libraries, VAX/VMS

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### Our Target Segment

- Electronic warfare systems
- Software Integration Support
- Display software updates and testing
- Backup Management system
- Itarsi

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### Our Projects Done

- Telemetry monitoring software, protocol converter, Bus Analyzer, Fuel Pump test plan Automation, Proxy server
- Toyo, HPCL-LT, Mahul-61850, KRL-61850, Doshion, NTP C-dathri
- NRT for Air Data System LCA, Engine control system for Kaveri engine, Development of test software to test the IFCS
- Sin Guard, Kiosk, Device driver development, RTDT data transfer, Data Guard
- Python to IDL, 1553 software porting, Linear Design of KADECS controller, 9355 ISRO

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### Our Skill Set

- 4+ year of experience Engineers in RTLinux, C, C++, Unix
- 3+ year of experience Engineers in SCADA, LabVIEW, C
- 5+ years of experience Engineers in C, C++, C++, Mat lab, Java, .NET, SQL
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### System In Lob

- 12 years
- 12 years
- 15 years
- 10 years
- 14 years
## “Our Performance Continued”

### Project Executed

<table>
<thead>
<tr>
<th>RTIS</th>
<th>ISA</th>
<th>IV&amp;V</th>
<th>ODC</th>
<th>ODIC</th>
<th>Product &amp; Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1553 bus analyzer and Simulator “NSTL”</td>
<td>Data Logger “EGRL”</td>
<td>Engine control System “DARE”</td>
<td>Kiosk</td>
<td>ISRO : 9355 Pack win 93 Software</td>
<td>NPOL : VME Chassis, DARE : VME Chassis</td>
</tr>
<tr>
<td>Telemetry Monitoring software</td>
<td>HPCL -SAT commissioning</td>
<td>Non real time (NRT) testing of Air Data System for IV&amp;V</td>
<td>SinGuard</td>
<td>VSSC : cPCI Card with drive software</td>
<td>BHEL : IPC and Monitors,</td>
</tr>
<tr>
<td>Protocol converter</td>
<td>NTPC- Korba Application software development</td>
<td>Development of tests software to test the IFCS at the Iron Bird Site</td>
<td>1553 device driver development</td>
<td>OES - Omnicell India</td>
<td>ADE : RPS121 Panel PC</td>
</tr>
<tr>
<td>Fuel pump test plan automation</td>
<td>Software development using Scada at KRL</td>
<td>Display software- ADA</td>
<td>SymIS</td>
<td>Python to IDL</td>
<td>ISRO : 9355 Signal amplifier</td>
</tr>
<tr>
<td>RTDT Data Transfer</td>
<td>Data concentrator development for IOCL</td>
<td>Mission Software -ADA</td>
<td>Data Guard_ Quick Rescue</td>
<td>1553 software porting</td>
<td>Mico : IPC with Monitor</td>
</tr>
</tbody>
</table>
“Our System Integration Life Cycle-SILC”

Range of Activities

Requirement Study

Designing

Software Development and Integration

Implementation

All from an ISO 9001:2000 Certified Organization

Pre PO Activities

- Appreciation of customer’s LOB.
- Need aspect analysis
- Scope of Project Vis-à-vis LOB.
- Conclude on need weightage and project probability.

Post PO Activities

- Requirement fit analysis.
- Requirement questionnaire
- Requirement vis-s-vis SBBs availability.
- Requirement vis-s-vis core competence mapping.
- Identification of CDC.
- Finalized IPRS as output

- Top level system design
- S/W design including UML outputs
- Test and ATP design
- COTS and customized SBBs design
- Integrated top level system design

- Coding
- Unit testing, integration testing,
- COTS hardware acquisition and Custom H/W development
- Calibration and testing
- IATP and FAT

- Delivery and acceptance
- Independent SAT
- Customer equipment integration testing
- Integrated onsite ATP
- Installation and IDSAR reports
- Warranty for 0-10 years
“Our Synergy Areas”

Synergy Area 1: Embedded Integrated Solutions through our RTIS-CDC

<table>
<thead>
<tr>
<th>Activity Brief</th>
<th>Development of RTOS based software, Board Support Packages, Device Drivers, Target &amp; Special Purpose software development encompassing from FPGA/DSP to C, C++, Open GL, QT including embedding/successful testing and qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Either as a Turn key Project [or] as Outsourced Product Development</td>
</tr>
<tr>
<td>Suggested Model</td>
<td>ODC [or] ODIC</td>
</tr>
<tr>
<td>Competence Delivery Centre</td>
<td>RTIS of Symmetric</td>
</tr>
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**RTIS - Our Olympic Performance!!**

- 1553 bus analyzer and Simulator “NSTL”
- Telemetry Monitoring software
- Fuel pump test plan automation
- RTDT Data Transfer
- Wideband Signal Processing Systems
- Data Acquisition and Storage System

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## Synergy Area 2: Embedded Integrated Solutions through our ISA-CDC

<table>
<thead>
<tr>
<th>Activity Brief</th>
<th>Control system application, Data Acquisition, Automatic Test Equipment, Loggers and recorders including embedding/ successful testing and Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Either as a Turn key Project [or] as Outsourced Product Development</td>
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<td>Competence Delivery Centre</td>
<td>ISA of Symmetric</td>
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</tbody>
</table>

### ISA - Our Olympic Performance!!

- Data Logger “EGRL”
- HPCL –SAT commissioning
- NTPC- Korba Application software development
- Software development using Scada at KRL
- Data concentrator development for IOCL
- Demo Cabinet Simulator

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### Synergy Area 4: Software and IV&V Testing through our IV&V-CDC

<table>
<thead>
<tr>
<th>Activity Brief</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsystem testing including Non-Real Time through simulation &amp; modeling,</td>
<td>Verification and Validation as per IEEE12204, DO178 including Unit Level test,</td>
</tr>
<tr>
<td>Verification and Validation as per IEEE12204, DO178 including Unit Level test,</td>
<td>HIS testing &amp; Comprehensive SDLC phase, IV&amp;V Doc’s, report generation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Color</th>
<th>Onsite/Offsite/Hybrid</th>
</tr>
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<tr>
<td>Suggested Model</td>
<td>OTC</td>
</tr>
<tr>
<td>Competence Delivery Centre</td>
<td>IV&amp;V Testing Centre</td>
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### IV&V - Our Olympic Performance!!
- Engine control System “DARE”
- Non real time (NRT) testing of Air Data System for IV&V
- Development of tests software to test the IFCS at the Iron Bird Site
- Display software- ADA
- Mission Software -ADA
- Verification and Validation Testing-RCI
- Mission Critical Software Testing

A Totally Integrated Project Engineering Organization!!
Credentials

240 Customers with satisfaction level of 95%
Customer retention efficiency of 94.5%
140 Consultancy activities in 6 year time
High thrust on product based development SymIS and PEDAS
Associated with Evolving Test Procedure for SI Project
Skilled Manpower for Development and Support
Backed by Quality Hardware and Software Resources
Strong 60 member organization
Customer focus through automated tools "SymSAS"

Credits in Detail
“More About Us……”

1. Organization Presentation - Continued: Solutions and Services
2. Real Time Integrated Solutions [RTIS]
3. Industrial System Automation [ISA]
4. Software Development Division [SDD]
5. Independent Verification and Validation [IVNV]
6. Joint Venturing and BNP
7. Offshore Test Centre [OTC]
8. Offshore Dev and Integration Centre [ODIC]
9. Technology Alliance Partners and Presentations
10. Joint Venturing and BNP
Real Time and Data Acquisition Solutions

…..In Perfect Consonance……

THANK YOU

A Totally Integrated Project Engineering Organization !!