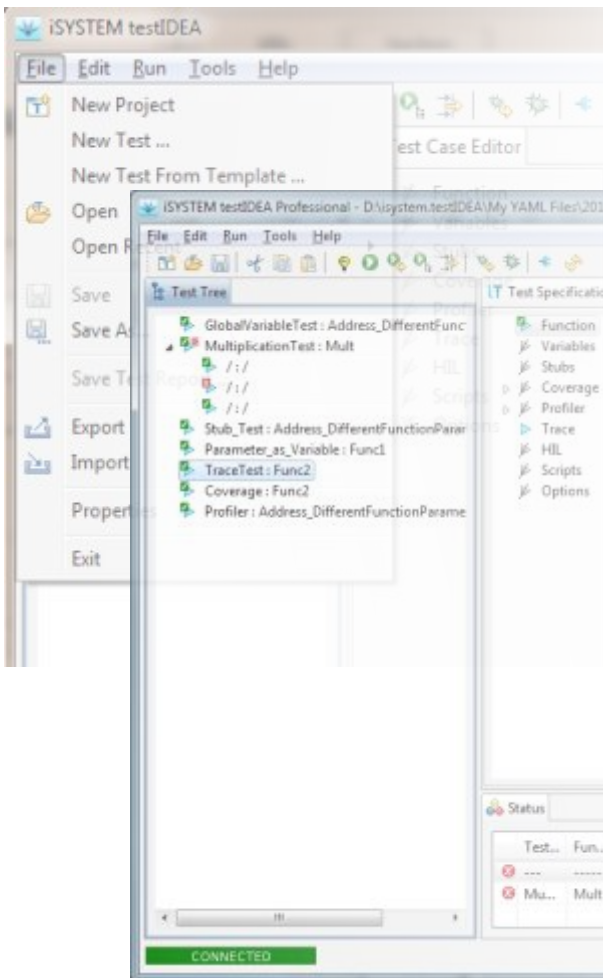




## testIDEA - Software Test without code instrumentation

Testing in general and especially according to functional safety standards is gaining more and more importance in the embedded world. iSYSTEM provides a real-time test tool (testIDEA) integrated in iSYSTEM's development environment (winIDEA) that allows execution of test cases without code instrumentation!



### Characteristics

- Object Code and Source Code level testing
- No test driver / harness
- Optimized code supported
- Integrated in winIDEA
- Wide range of supported CPUs and compilers
- No instrumentation or recompilation required
- Real-Time user stubs

### Requirements

- Just a target application!

### Benefits

- The Test environment corresponds as closely as possible to the target environment
- Quick turn-around times
  - ↪ No additional compile, link and download cycle while testing
- Flexibility in use
  - ↪ Technology may be used for unit, integration and system test
  - ↪ Combine trace, performance analysis, code coverage and I/O stimuli within test runs

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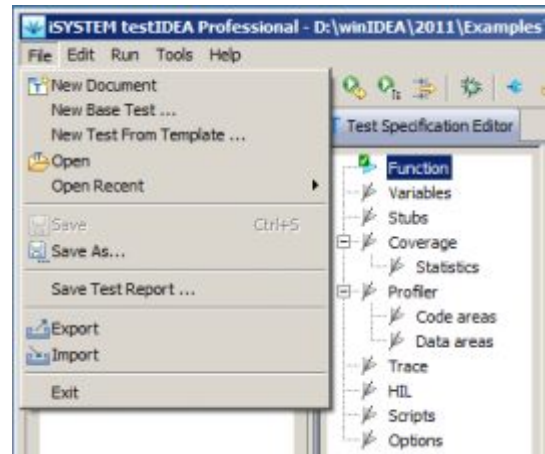


# Development & Test Tools

## testIDEA

For an easy to use approach, **testIDEA includes a GUI** that simplifies **creation and execution of test cases and report generation**. All test cases can be reused in scripts. A tight association with Excel allows parameter import and export.

- ❑ GUI and script based test case creation with parameter import/export from/to Excel, CSV, CTE XL Professional and others
- ❑ Test case execution on the final hardware without code instrumentation
- ❑ Test report generation (XML, YAML, CSV, Excel)
- ❑ Regression test support
- ❑ Combine tests with trace, profiler and code coverage analysis
- ❑ Combine tests with iSYSTEM I/O module
- ❑ Wide range of supported compilers

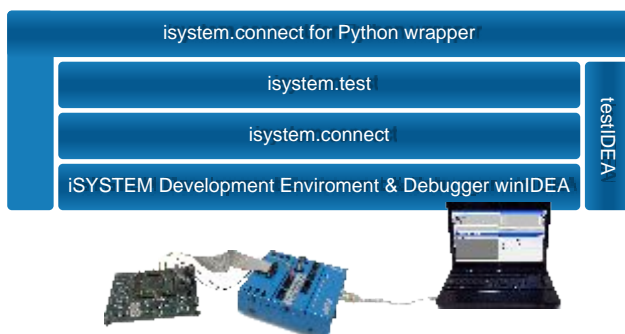


## isystem.connect

testIDEA uses the isystem.connect programming interface (see below) which is an open API set completely integrated in winIDEA. Using isystem.connect one can **write test applications/cases and also automatically execute them** on the hardware connected by iSYSTEM tools or 3rd party debuggers supported by winIDEA. Test applications and test cases can be written in many different **programming and scripting languages (Python, Java, C/C++, C#, Perl, TCL, ...)**.

The isystem.connect API enables external applications to remotely control iSYSTEM software/hardware and to record data from the target system while the application is running.

## Remote Control and Test API Architecture



- ❑ “Remote Control“ debug and test environment
- ❑ Transfer data automatically to/from other applications
- ❑ Support of many scripting and programming languages, e.g. Python, Perl, TCL, C/C++, C#, Java, ...

# For Embedded Software & Hardware Engineers

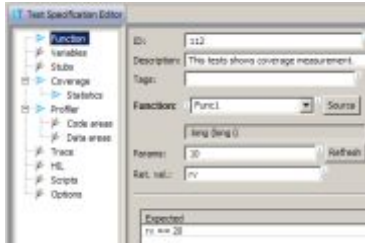
Test Specification

Test Specificaton

```
func: [min_int, [3, 5], rv]
```

Interface

testIDEA



SCRIPT

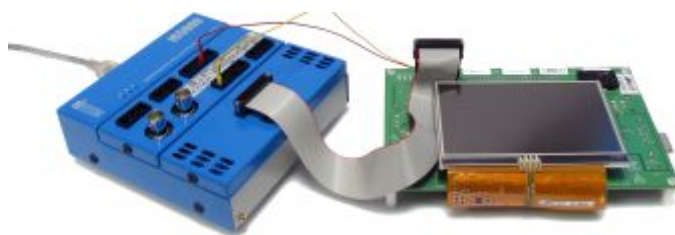
```
tester.loadTestSpec(testSpecFile)  
tester.runTests(rootTestSpec)  
testResults = tester.getTestResults()
```

iSYSTEM API



```
isystem.connect  
isystem.test  
API
```



Test Execution



# Free testIDEA Standard vs. Professional

	 Standard	 Professional
<b>Basic Test</b>		
Descriptive Tooltips	●	●
Auto-Completion	●	●
Test Case ID	●	●
Test Case Tags	●	●
Test Case Description	●	●
Local Test Case Variables	●	●
Stubs	●	●
Derived/Sub Test Case creation	●	●
Copy/Paste to/from Scripts	●	●
Execution of Tests Cases generated with standard version	●	●
Debugging of Test Cases	●	●
<b>Advanced Test</b>		
Wizard for Test Case generation		●
Real-Time stubs		●
Templates		●
iSYSTEM I/O Modules		●
3rd party HIL hardware support		●
Code Coverage (Statement, Decision, Function and Call Coverage)		●
Profiler/Performance Analysis		●
Trace		●
Stack usage measurement during test		●
Import and Export (Excel, CSV, CTE XL Pro)		●
Test Specification in C/C++ Sources		●
Dry Run		●
Validation of test specification		●
Sequence Tags		●
Testpoint Support		●
Fault injection		●
Rename (functions or variables)		●
Execution of Tests generated with Professional Version		●
<b>Scripting</b>		
Script Generation by mouse click (Python, Perl)		●
Script Execution before or after test case execution		●
<b>Reporting</b>		
Report Generation (XML, CSV, Excel)		●
XML Style Sheet Templates (XSLT)		●
Excel Export of reports, trace, code coverage & profiler data		●