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Atollic TrueVERIFIER

Improve software quality with test automation!

atollic ab

Science Park
Gjuterigatan 9
SE-553 18 Jönköping
Sweden
+46 (0)36 10 02 20

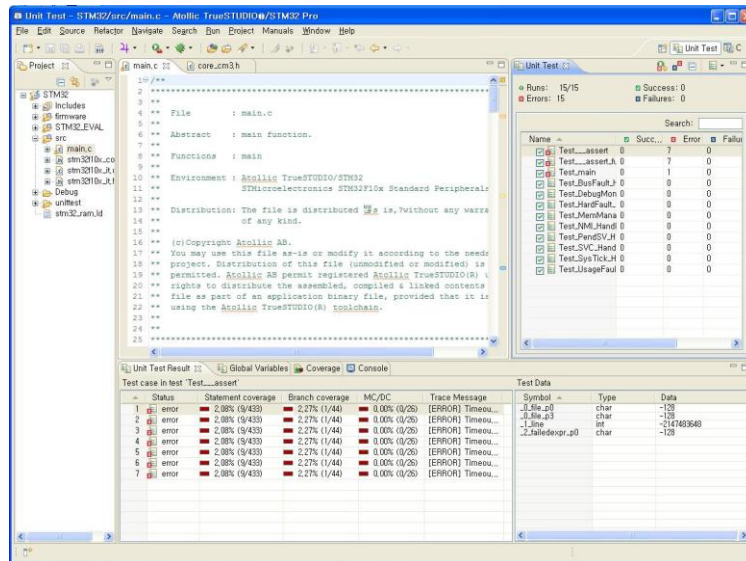
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Test automation



What is it?	The means by which a software tool analyse the source code of a program, generates suitable test cases and run them automatically.
Why do it?	With auto-generated test cases, the code & tests are always in synch, test cases cover a much larger part of the code, and good testing becomes easier and better.
How does it work?	A tool analyze an application, generate test cases, and execute them with execution-path monitoring. Once a test session is completed, test results and test coverage information is presented to the developer or tester.

TrueVERIFIER overview

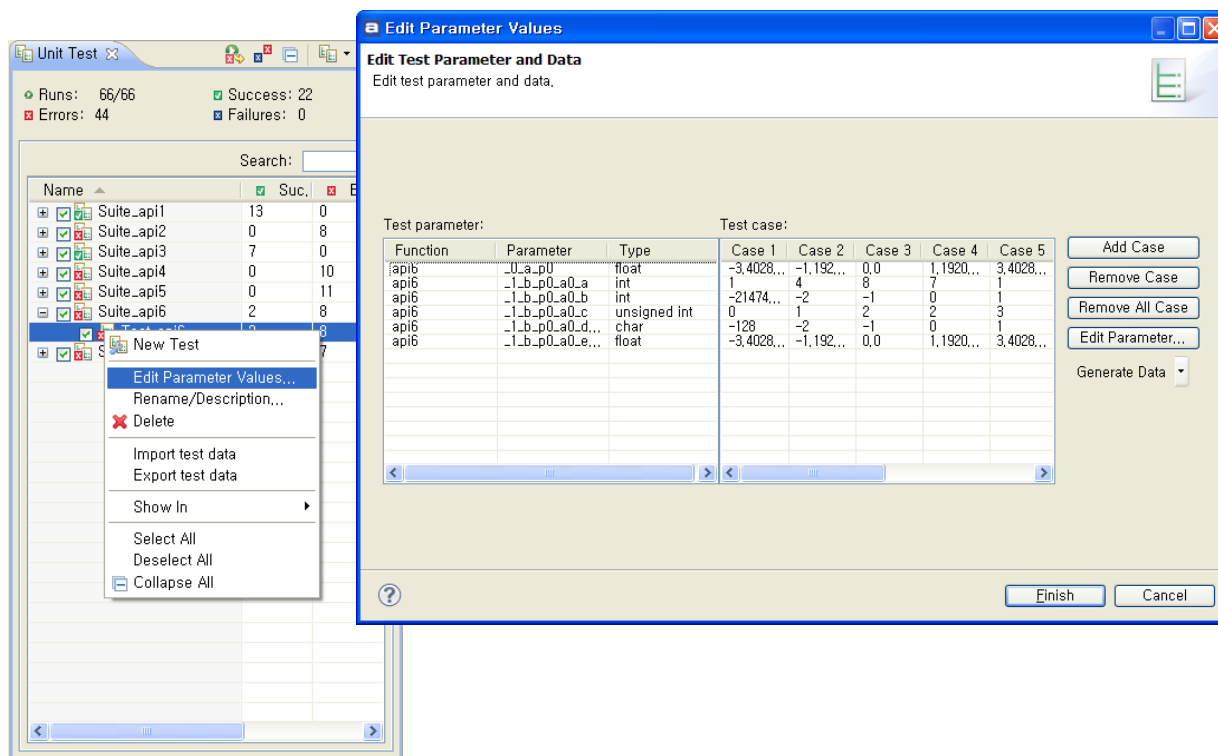


JTAG



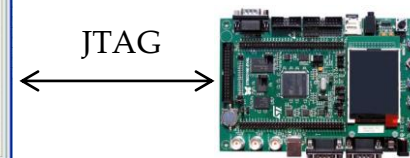
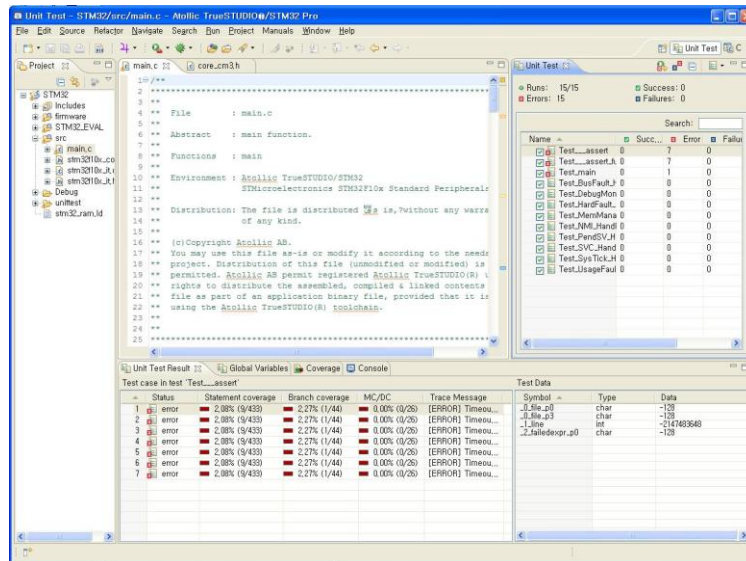
- Test automation tool running unit tests on target board
- Automatic test code & test case generation
- Automatic build and download
- Execution of test cases in target board

Test data



- Edit test parameters and data in GUI
- Automatic test data generation
- Export and import test data in CSV format

Test execution



- Auto-build generated test cases using the TrueSTUDIO compiler
- Auto-download compiled test cases using the TrueSTUDIO debugger
- Auto-execution of test cases in target board
- Execution-path monitoring of code execution

Test results

```

40
41 static void Test_api3(struct Test_api3_param *p)
42 {
43     /* variable declaration region */
44     char * a;
45     void *ptr0;
46     char b[10];
47     char c[10];
48
49     /* memory allocation region */
50     ptr0 = a = (char *) malloc(sizeof(char)*1);
51
52     /* variable definition region */
53     a[0] = p->_0_a_p0;
54     b[0] = p->_1_b_a0;
55     c[0] = p->_2_c_a0;
56
57     /* function call region */
58     CS_ASSERT (api3(a,b,c) != NULL);
59     CS_ASSERT (strlen(api3(a,b,c)) >= 10);
60

```

Test case in test 'TestApi3'	Status	Statement coverage	Branch coverage	MC/DC	Trace Message
1	success	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	
2	success	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	
3	success	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	
4	fail	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	[ASSERT] strlen(
5	success	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	
6	success	4.34% (19/438)	0.00% (0/103)	0.00% (0/49)	

```

103
104 char* api3(char *a, char b[], char c[10])
105 {
106     char *ret;
107     printf("===== char* api3(char *a, char b[], char c[10]) Input =====\n");
108     printf("char *a:%s\n", a?a:"NULL" );
109     printf("char b[]:%s\n", b?b:"NULL" );
110     printf("char c[10]:%s\n", c?c:"NULL" );
111     printf("===== Input end =====\n");
112
113     ret = (char*) malloc(strlen(a)+strlen(b)+strlen(c)+1);
114     strcpy(ret, a);
115     strcat(ret, b);
116     strcat(ret, c);
117
118     printf("\n===== char* api3(char *a, char b[], char c[10]) Output =====\n");
119     printf("char *ret : %s\n", ret?ret:"NULL" );
120     printf("===== Output end =====\n");
121     return ret;
122 }

```

Source	Block Cover...	Branch Cover...	MC/DC	Path
api1	100.00% (3...)	100.00% (10/...	100.00% (5/5)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api3	100.00% (1...)	0.00% (0/0)	0.00% (0/0)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
show_noc	87.50% (28...)	66.67% (4/6)	33.33% (1/3)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
show_uni	47.37% (9/19)	50.00% (2/4)	0.00% (0/2)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api4	100.00% (2...)	0.00% (0/0)	0.00% (0/0)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api5	29.63% (8/27)	10.00% (1/10)	0.00% (0/5)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api6	100.00% (2...)	83.33% (5/6)	66.67% (2/3)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api10	100.00% (2...)	0.00% (0/0)	0.00% (0/0)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...
api11	100.00% (1...)	0.00% (0/0)	0.00% (0/0)	C:\Users\Wkidd6296W\AtollicW\TrueSTUDIO\workspace 14W\TestOW...

- Measure test results (success/failure/error)
- Measure test coverage (Statement-, Branch-, MC/DC-coverage)
- Print test data used
- Provide report in MS-Word, MS-Excel, MS-PowerPoint, HTML, PDF format



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Improve your software quality with
Atollic TrueVERIFIER!

Any questions?

"Embedded passion"