Application Note

DISPLAYING A COUNT OF GOOD HARNESSES

Dynalab
TEST SYSTEMS

Displaying a Count of Good Harnesses

This document explains how to use PASS 6.0 software to program the Dynalab Analyzer to display the number of harnesses that have passed all tests.

This document contains the following main sections:

1. a list of assumptions – knowledge required to perform the tasks outlined in this document
2. an explanation of the problem
3. an explanation of the solution
4. an overview of the Dynalab solution to the problem, including example Sequences.

Assumptions

To successfully use this document, the following knowledge is required:

- basic knowledge of how to enter data in the messages table using PASS 6.0
- knowledge of how to use the Sequence table to create a Sequence

For assistance on how to use features of PASS 6.0, see the PASS 6.0 Help file.

Problem

There is a need to know how many good harnesses have been tested by an Analyzer.

Solution

The Analyzer is programmed to maintain a count of all good harnesses. This count is displayed whenever a harness passes all tests. A mechanism is provided to allow the Operator to reset the counter.

Solution Overview

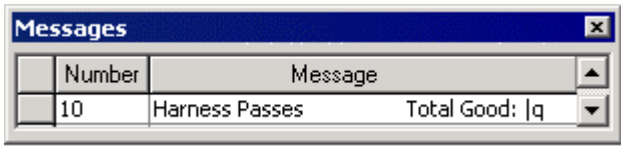
The Analyzer has an internal counter that can be used to keep track of the number of harnesses that have passed all tests. This counter is called the Sequence Counter. In PASS 6.0, the Sequence Counter is symbolized as SCOUNT.

In order to count the number of good harnesses, a Sequence item must be included in the PASS 6.0 program that will increment the Sequence Counter every time a harness passes all tests. This is done using the SCOUNT++ Sequence item. SCOUNT++ will increment the Sequence Counter by a value of one.

Here are some important facts about the Sequence Counter:

- Minimum value is 0
- Maximum value is 65535
- The Sequence Counter automatically rolls over to 0 after reaching 65535
- The value of the Sequence Counter is persistent – it does not reset when the Analyzer is turned off or when a new program is selected.

The value of the Sequence Counter may be displayed in a message by using the format symbol |q, as illustrated below:



In this example, when Message 10 is displayed, the Analyzer will substitute the value of SCOUNT for |q.

The following is an example PASS 6.0 Sequence, showing the use of SCOUNT++ to increment the Sequence Counter only if a harness passes all tests.

Example Sequence: Count the number of good harnesses

Line	Sequence Item	Parameter	Description
1	TEST	MAIN	Performs a complete Netlist scan of the harness.
2	OERP		On Error Repeat Previous
3	SCOUNT++		Increment SCOUNT (Sequence Counter)
4	KMESSAGE	10	Displays Message 10: “Harness Passes Total Good: |q”
5	REPEAT		Goes to line 1 to repeat Sequence execution

Line 1 TEST performs a series of scans on the Netlist specified by the Parameter, in this case, MAIN.

Line 2 OERP causes execution of the previous Sequence item to be repeated if errors occurred. This ensures that subsequent Sequence items will not be executed until the harness passes all tests.

Line 3 SCOUNT++ increments the value of the Sequence Counter by one. Once the Sequence Counter reaches a value of 65535, incrementing by one will cause it to roll over to 0.

Line 4 KMESSAGE 10 displays Message 10 – in this example, the message is “Harness Passes ! Total Good; |q”. The Analyzer substitutes the value of SCOUNT for the format symbol “|q” when displaying this message.

Line 5 REPEAT instructs the Analyzer to go to Line 1 and repeat execution of the sequence.

Note that Lines 3, 4 and 5 are executed only if the harness passes all tests. If errors are logged during TEST (Line 1), OERP on Line 2 will cause TEST to be repeated. Therefore, the Sequence Counter is incremented and displayed only if the harness is good.

How to reset the Sequence Counter

As mentioned earlier, the Sequence Counter is persistent. It does not automatically reset when the Analyzer is turned off or when a new program is loaded. The Sequence Counter will automatically reset to 0 after reaching a value of 65535.

There are times when it may be desirable to manually initiate a reset of the Sequence Counter such as shift changes or product changeover.

One way to reset the Sequence Counter is to modify the PASS program such that when the program is initially executed, the operator is prompted to indicate if the Sequence Counter should be reset.

Another way is to manually reset the Sequence Counter through the Analyzer's OPTIONS MENU.

Both methods will be described in this section.

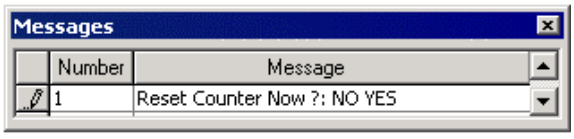
How to modify the PASS program to prompt the operator for reset of Sequence Counter

The following is an example PASS 6.0 Sequence, showing how to prompt the operator to indicate if the Sequence Counter should be reset. When the program is first executed, the Analyzer will display a prompt that says "Reset Counter Now?" followed by two options labeled "NO" and "YES". If the operator selects NO, the program continues using the current value of the Sequence Counter to generate serial numbers. If the operator selects YES, the program will set the Sequence Counter to 0 before proceeding.

Example Sequence: Prompt the operator to reset Sequence Counter

Line	Sequence Item	Parameter	Description
1	**MENU**	**1**	**Displays a menu as defined in message number 1**
2	**SWITCH**		**Go to CASE label matching holding value**
3	**CASE**	**2**	**Label for holding value = 2 (selection is YES)**
4	**SCOUNT=0**		**Set SCOUNT equal to zero**
5	**CASE**	**1**	**Label for holding value = 1 (selection is NO)**
6	TEST	MAIN	Performs a complete Netlist scan of the harness.
7	OERP		On Error Repeat Previous
8	SCOUNT++		Increment SCOUNT (Sequence Counter)
9	KMESSAGE	10	Displays Message 10: "Harness Passes Total Good: |q"
10	GOTO	6	Goes to line 6

In this example, the PASS Messages table contains an entry for message number 1 as follows:



Line 1 The MENU Sequence item displays a menu using the message text associated with the message number specified as the parameter – in this case, 1. Message 1's text is defined as:

```
Reset Counter Now?: NO YES
```

This causes the menu and selections to be displayed by the Analyzer as follows:

```
Reset Counter Now?
>NO
 YES
```

The operator uses the DOWN and UP buttons to place the cursor next to the desired option. Once the cursor is next to the desired option, the operator presses the START button to make the selection.

If the operator selects the first option (NO), the Analyzer's holding register is set to 1. If the operator selects the second option (YES), the holding register is set to 2.

Line 2 SWITCH causes execution to branch to the CASE label corresponding to the value of the holding register. In this situation, execution branches to Line 5 if the operator selected NO (holding register = 1), or to Line 3 if the operator selected YES (holding register = 2).

Line 3 CASE – since the parameter is 2, this is the CASE label to which execution branches when the holding register = 2. This is where execution resumes when the operator selects YES.

Line 4 SCOUNT=0 causes the value of the Sequence Counter to be equal to zero.

Line 5 CASE – since the parameter is 1, this is the CASE label to which execution branches when the holding register = 1. This is where execution resumes when the operator selects NO.

Line 6 TEST performs a series of scans on the Netlist specified by the Parameter, in this case, MAIN.

Line 7 OERP causes execution of the previous Sequence item to be repeated if errors occurred. This ensures that subsequent Sequence items will not be executed until the harness passes all tests.

Line 8 SCOUNT++ increments the value of the Sequence Counter by one. Once the Sequence Counter reaches a value of 65535, incrementing by one will cause it to roll over to 0.

Line 9 KMESSAGE 10 displays Message 10 – in this example, the message is "Harness Passes ! Total Good; |q". The Analyzer substitutes the value of SCOUNT for the format symbol "|q" when displaying this message.

Line 10 GOTO 6 instructs the Analyzer to go to Line 6.

How to reset the Sequence Counter by using the Analyzer's OPTIONS MENU

To access the Analyzer's Options Menu from the Main Menu, insert a DynaCard and press the STOP button.

```
    OPTIONS MENU
 DYNACARD   PROG DATA
 MEMORY    >COUNTERS
 ERR LOG    AUTOLEARN
```

In the Options Menu, use the DOWN and/or UP buttons to place the cursor next to the COUNTERS menu item. Press the START button to select the COUNTERS menu item.

```
      COUNTERS
 DISPLAY    CLR BOTH
 CLR REP    SET REP
>CLR SEO    SET SEO
```

In the COUNTERS menu, use the DOWN and UP buttons to place the cursor next to the CLR SEQ menu item. Press the START button to select the CLR SEQ menu item.

```
      CONFIRM
 NO
>YES
```

To confirm reset of the Sequence Counter, place the cursor next to the YES menu item. Press the START button to select YES.

The Sequence Counter is now reset to zero. Press the STOP button twice to return to the Main Menu.