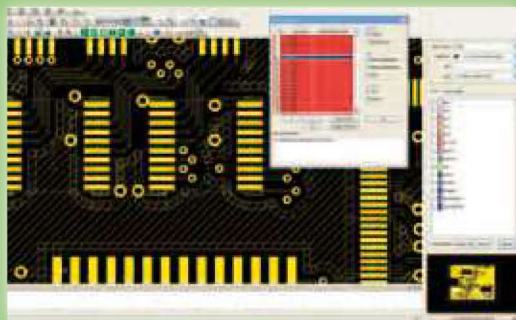


## Populated Board Electrical Testing System

Automatic Test Equipment



### Introducing a full line of solutions, from data creation to testing and confirmation



## Program

Testing Data Creation System

FIT-LINE UA1780



## Test

FLYING PROBE TESTER

FA1240



## Visualize

FAIL VISUALIZER

UA1782

Populated Board  
Electrical Testing System  
FLYING PROBE TESTER

# Complete coverage,

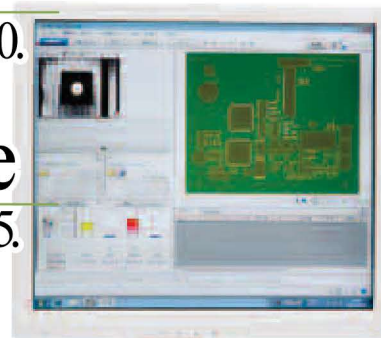
Experience the cumulative difference: UA1780 + FA1240 + UA1782

**90%** faster data creation

Reduce data creation time by a factor of 10.

**93%** less line downtime

Slash line stoppage time by a factor of 15.



# from data creation, populated board testing, right up to confirmation of defect locations

One major issue with using flying probe testers is that all steps must be performed in-house, making the testing process a time-consuming undertaking. By combining multiple components to form a board electrical testing system, Hioki has slashed data creation time by 90% and line downtime by more than 93% compared to previous models.

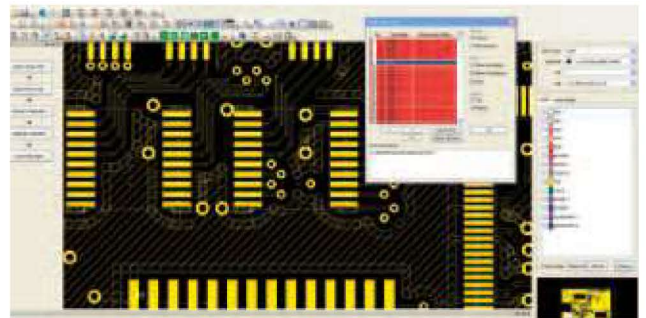
Hioki's approach promises to lower testing man-hours by linking three processes that are essential when using flying probe testers in the field: data creation, electrical testing, and confirmation of defect locations.

## Faster programming

## FIT-LINE UA1780

Creating test data quickly with nothing but electronic data (no need for actual boards)

Since test coordinates and net (component connection) information can be created from Gerber data, mounting data, and other design information, it is possible to extract accurate testing information by means of a five-step process. If Gerber data is not available, it can be obtained easily from the bare board manufacturer. If accurate information is used, it is possible to create data that will not need to be corrected by hand.



## Easier testing

## FLYING PROBE TESTER FA1240

Easy since you don't have to worry about component shapes

Since the size of components (their width and height) is acquired from the UA1780, the tester can automatically detect when probes will make contact. Workers need only load boards into the system to begin debugging.

Easy debugging: Just leave it to ATG (Automatic debugging)

The ATG function can automatically debug most components since the system acquires net information directly. Now technicians can complete debugging work in the smallest possible number of man-hours, making it easy to create high-quality data.

## Faster visualization of defects

## FAIL VISUALIZER UA1782

Reliance on the UA1780 for high-speed performance

The Fail Viewer allows you to check fail locations without stopping the tester. To start confirmation work, you need only load the FA1240's test results into the Fail Visualizer.

Proactive application of FA1240 corrections for superior speed

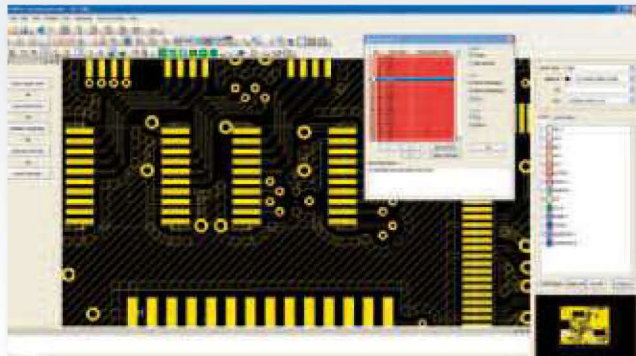
Since the differences between the actual test data and the Gerber data, for example those due to corrections of test points made on the tester, have already been applied to the display of defect locations, you can check defects based on actual test results.



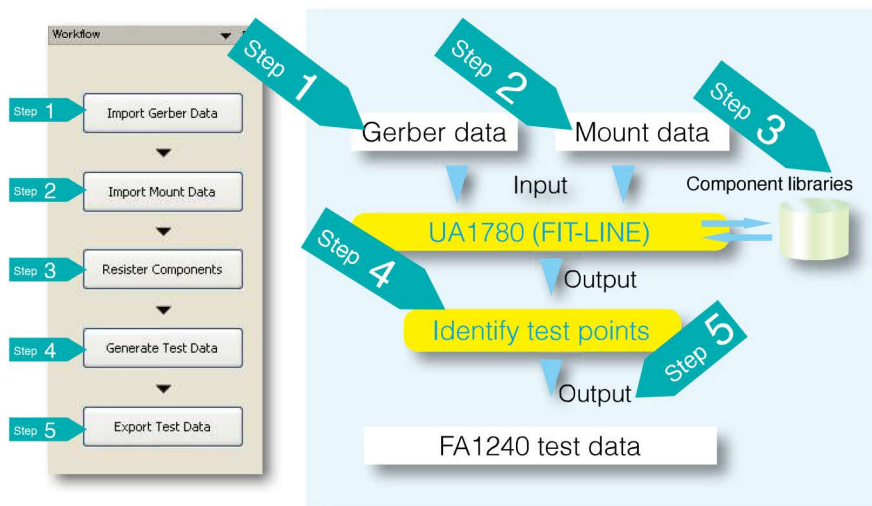
# UA1780 Series

## FIT-LINE INSPECTION DATA CREATION SYSTEM UA1780

4-year license pack	UA1780
1-year license pack	UA1780-01
1-year licence renewal	UA1780-11
4-year licence renewal	UA1780-14



### Five steps for Creating High-Quality Data

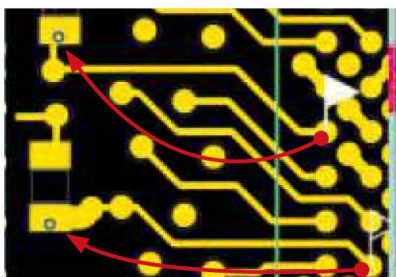


By using Gerber data and Mount data and simply following the five steps, operators can easily and quickly create high-quality data. (for FA1240,1240,1114,1112)  
Gerber data for bare boards can be obtained from the board manufacturer, so be sure to make use of that resource. Hioki recommends using Gerber data to create test data in order to minimize the need to go back and make corrections by hand.

## Easy BGA testing by In-circuit tester Program

### Use of net data

For components such as BGAs that do not have exposed test pins, the system searches for testable pins using net information such as other components' test points and automatically performs substitution processing. Since the same processing is performed automatically not only for ICs, but also for the test points of connectors and minuscule components such as 0603 packages, there's no need to spend any time worrying about extraction of test points.



BGA point replacement processing

### High-quality data, regardless of who prepares it

Use of component libraries during the data creation process allows UA1780 FIT-LINE to automatically configure test point and test information. The system can create data for components such as BGAs with complex pin layouts so that no component is left untested.

\*Offline data creation also allows data to be created more quickly on the 1240,1114 and 1112 (80% faster than the conventional approach).

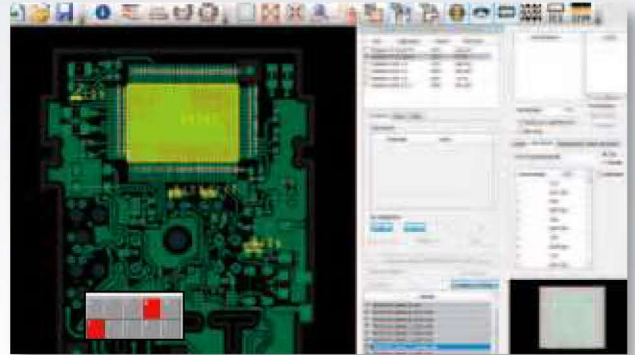


Component registration

Introducing a data creation system that incorporates the expertise embodied in Hioki's U-ART bare board test data creation software, which tests 10  $\mu\text{m}$  patterns

## FAIL VISUALIZER UA1782

Supports UA1780 database input	UA1782
Supports IPC-D-356 format input	UA1782-01
Supports CAN & ADR formats input	UA1782-02

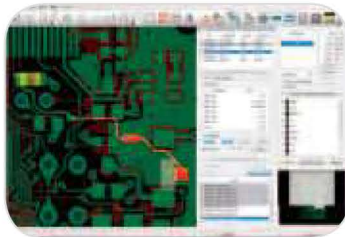


## Extensive view functionality to quickly find the locations of failed components

### Net search view

The visualizer automatically creates a list of components that are connected to the same pattern as a defective component, and it also highlights pattern wiring in all layers and mounted components for each point with which the test probes make contact.

You can also easily check components mounted on the opposite surface of the board and components such as bypass capacitors that are connected in parallel.

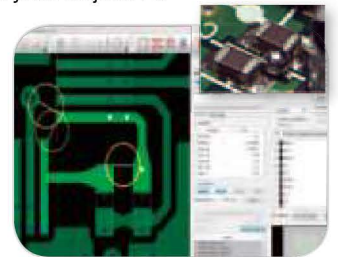


### Proximity check view

The visualizer displays check marks at solder bridge risk points other than component pins that are physically close, for example between adjacent components or nearby through-holes after flow soldering.

Choose the mode that best fits your objective:

**populated board search mode**, which searches only between surface-layer pads and through-holes, and **bare board search mode**, which checks near distances between user-specified patterns, including inner layers.



## Easy repair by combining function and X-ray testing

Test

Visualize

### Three-dimensional component information and FA1240

Since the system ensures probes make reliable contact while automatically avoiding arm conflicts, even for BGA test points that are allocated across the entire board, debugging can be carried out quickly and smoothly without damaging components or probes.

BGAs can be tested with the same number of man-hours of preparation as simple array SOPs.



Worry-free probe contact even in locations that are densely populated with components

### Easy searching for fail pins in test result files

The Fail Viewer makes it easy to check not only the location of BGA pins that generated fail results, but also points that were actually tested. Since confirmation work for X-ray testing can be carried out with pinpoint accuracy, analysis time is reduced.





# Populated board testing equipment

## FLYING PROBE TESTER FA1240



FA1240-51,-52



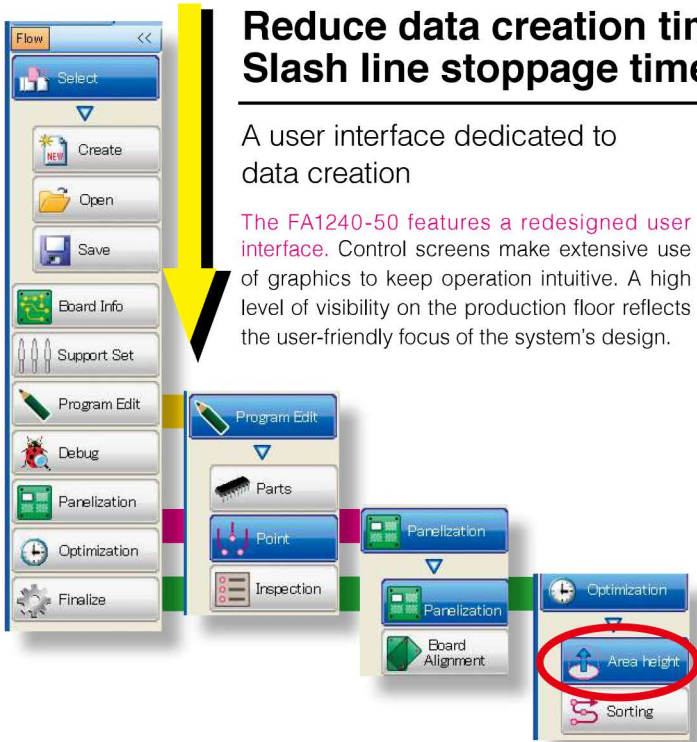
FA1240-53

### “Program, test and visualize” to ensure reliable testing

**Reduce data creation time by a factor of 10.  
Slash line stoppage time by a factor of 15.**

A user interface dedicated to data creation

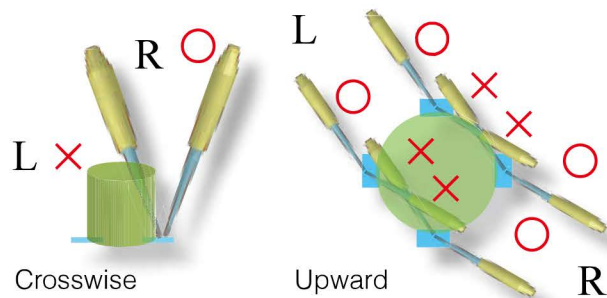
The FA1240-50 features a redesigned user interface. Control screens make extensive use of graphics to keep operation intuitive. A high level of visibility on the production floor reflects the user-friendly focus of the system's design.



Ideal debugging:

Simply view before and after results.

New ATG functionality and automatic calculation of arm interference dramatically reduce the number of man-hours that must be devoted to debugging work. In addition to wait time configuration and guard selection, the software automatically selects the best arms to use for optimal contact based on component profiles. These innovations reduce debugging man-hours while improving test data quality.



Probes and board clamping: Prerequisites for reliable measurement

### 10 times the number of applications by new probes

Probes only need to be replaced 1/10th as frequently since they are **damage-free** after 3 million applications.

Initial state (unused)    After 1.5 million applications    After 3 million applications

Standard probe



New super-hard probe



\*Based on a HIOKI comparison. Number of applications varies with conditions of use.

### Ability to accommodate special specifications for mass-production lines

Hioki can accommodate a range of customer needs with a high degree of flexibility, including **line support units** that do not require support pin setup changes and **transport solutions** that do not add to cycle times for use in mass-production applications.



Extensive product line for applications ranging from small-lot, multi-model manufacturing to mass-production  
Featuring a full array of capabilities, from verification of component mounting to function testing using waveform judgment

## IN-CIRCUIT HiTESTER 1220

Desktop Type	1220-50
Off-line Type	1220-51
Space-saving Type	1220-52
In-line Type	1220-55
POWER SOURCE UNIT	1937-04
TEST FIXTURE	CP1167



1220-50  
Desktop Type

1220-52  
Space-saving Type

### “Program, test and visualize” for mass-production testing

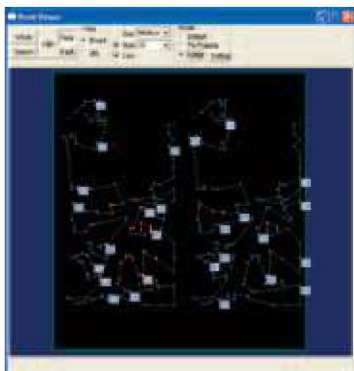
#### Full utilization of Gerber data, from test fixture manufacture to repair assistance

**“Program”** A new Gerber-compatible system based on the UA1780 for manufacturing test fixtures is also available. Now less time is wasted while waiting for bare boards, enabling you to better accommodate customers' desired delivery time frames.

**“Test”** By adding the new test fixture CP1167, we have increased the number of contact pins that can be used. Since we can now accommodate 75 mil probes and probes other than Hioki CP units, the range of applications has been broadened.

**“Visualize”** The Fail Viewer UA1782 now provides repair assistance using manufacturing data, eliminating the need for an expensive CAD system when checking the locations of defective components or component connection information. The software offers an extensive range of assistive functionality, including a component rank function and a point viewer.

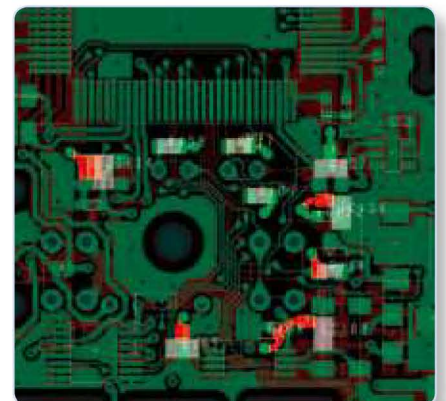
#### Display fail pins on the test screen in real time



Point viewer function screen  
(Factory Option)



#### Easily search for pin positions and component layout information



UA1782 Point information view



Experience  
the difference  
with  
benchmarks

For more detailed production information, please visit the HIOKI website at

[www.hioki.com](http://www.hioki.com)

Hioki can prepare populated board testing system benchmarks if provided with the three types of data listed below. As always, we recommend that you actually view and try out a system that meets your needs so that you can experience the new level of operability and speed that it provides.

1. First, identify the board with which you wish to try the system.

A specific scenario, for example a board for which it was particularly difficult to create data, fine points that are difficult to probe, or a BGA for which it was difficult to prepare data, provides an ideal opportunity to try a Hioki system.

2. Next, prepare the three types of data listed below so that we can prepare board testing system benchmarks:

**Gerber data** : This is typically known as Extended Gerber (274X) data.

This data is used when creating metal masks during the bare board manufacturing process and is therefore easy to obtain. Older boards use standard Gerber (274D) data. Even if there is no Gerber data available for your board, please contact a Hioki distributor for recommendations since it is possible for bare board manufacturers to create Gerber data from a sample board.

**Mount data** : This component location data is required by mounters and automatic insertion machines.

(It consists of comma or space-delimited text data.)

At a minimum, it must include codes that define component mounting coordinates, mounting angles, mounting surfaces, component names, and component shapes. This data may be either CAD data that is output to the moulder or data that is directly output by the moulder.

**Component List** : This data defines the specific components that correspond to the component names used in the mounting data (for example, "IC1"). It must include each component's manufacturer, manufacturer model number, and constant. (Hioki will review any need to adjust the format separately, for example if the mounting data and parts list comprise a single file.)

3. Finally, provide bare board and populated board samples. This step completes the preparation process.

We will provide a detailed benchmark report indicating not only the test time for the board, but also the amount of time required to create data, the testing rate, and other information.

"A picture is worth a thousand words."

Gathering information is critical, even when you have not yet begun considering specific equipment.

Hioki welcomes your inquiry.

Moving toward new future potential with measuring technology support

*Note: Company names and Product names appearing in this catalog are trademarks or registered trademarks of various companies.*

**HIOKI**

HIOKI E. E. CORPORATION

**HEADQUARTERS**

81 Koizumi, Ueda, Nagano, 386-1192, Japan  
TEL +81-268-28-0562 FAX +81-268-28-0568  
<http://www.hioki.com> / E-mail: [os-com@hioki.co.jp](mailto:os-com@hioki.co.jp)

**HIOKI USA CORPORATION**

TEL +1-609-409-9109 FAX +1-609-409-9108  
<http://www.hiokiusa.com> / E-mail: [hioki@hiokiusa.com](mailto:hioki@hiokiusa.com)

**HIOKI (Shanghai) SALES & TRADING CO., LTD.**  
TEL +86-21-63910090 FAX +86-21-63910360  
<http://www.hioki.cn> / E-mail: [info@hioki.com.cn](mailto:info@hioki.com.cn)

**HIOKI INDIA PRIVATE LIMITED**

TEL +91-124-6590210  
E-mail: [hioki@hioki.in](mailto:hioki@hioki.in)

**HIOKI SINGAPORE PTE. LTD.**

TEL +65-6634-7677 FAX +65-6634-7477  
E-mail: [info-sg@hioki.com.sg](mailto:info-sg@hioki.com.sg)

**HIOKI KOREA CO., LTD.**

TEL +82-42-936-1281 FAX +82-42-936-1284  
E-mail: [info-kr@hioki.co.jp](mailto:info-kr@hioki.co.jp)

**DISTRIBUTED BY**

**Seika Machinery, Inc**



**Los Angeles Head Office & Demo Center**  
21241 S. Western Ave., Suite 140, Torrance, CA 90501  
Main: 310-540-7310 FAX: 310-540-7930

**Atlanta Office & Demo Center**

1580 Boggs Rd., Suite 900, Duluth, GA 30096  
Main: 770-446-3116 FAX: 770-446-3118

**San Francisco Office**

23785 Cabot Blvd., Suite 306, Hayward, CA 94545  
Main: 510-293-0580 FAX: 510-293-0940

[www.seikausa.com](http://www.seikausa.com)

