



*Flying Probe System  
offering flexible test  
solutions to the electronic  
manufacturing industry*

- High test speed
- High test coverage
- Automatic program generation
- NetzTest
- Graphical debug tools
- Toolkit of test techniques

#### Introduction

The Flying Probe technology of the IFR 4500 enhances the range of test solutions offered by IFRs product portfolio. The Flying Probe offers a flexible solution to the problems associated with new product introduction and low quantity production. The use of automatic program generation, powerful debug tools and fixtureless operation, allow program commissioning times in the region of hours rather than weeks.

#### Why Use A Roving Probe Tester

Conventional bed of nails testers need fixtures which require:

- Fixed costs.
- An initial design and build time.
- Debug time associated with wiring mistakes and design changes.
- The need to overcome access problems.

Some product designs have limited test access when using a conventional fixture while the cost per unit in a low volume or prototype environment suffers from the relatively high cost associated with using a fixture. The IFR 4500 removes the fixture costs and overcomes test access issues while maintaining test coverage, thus ensuring a high quality test solution

developed in minimum time by using the fully integrated development and commissioning tools.

#### Time To Market

One of the main selection criteria for any type of ATE is the time taken to produce a test solution. The IFR 4500 is the only Flying Probe tester available where the CAD translation software (C-Link) and the operating software (CITE) were developed by the system design manufacturer. This integrated approach, with simple to use software tools ensures that test programs of the highest quality are produced quickly and easily.

#### Test Program Generation

Many testers use CAD translations that provide program and fixture information based only on 2 dimensions, X and Y. The C-Link software supplied with the IFR 4500 enhances the positional X and Y data with component heights. This three dimensional map of the board provides IFR with significant benefits:

- Collisions are avoided while allowing high speed, flexible probe movement.
- The height and shape of adjacent components can be considered when assigning access locations
- Heads movement is reduced

In addition, C-Link has been used for 20 years to generate test programs for conventional in-circuit testing. The software automatically defines which values are to be stimulated and measured, as well as the guard points required to isolate the component electrically. This ensures the creation of efficient and accurate test programs.

## 4500 series Flying Probe



#### Debug Tools

Commissioning of a test program is efficiently handled using the CITE suite of graphical debug tools which can be enhanced using Visual Basic.

#### Test Speed

Normal Flying Probe techniques usually have test times that are split 20% for component tests and 80% for shorts test. The IFR 4500 uses the patented NetzTest technique to dramatically reduce the overall test time by up to a factor of five.

The effect of NetzTest is to reduce the number of head movements required. With conventional shorts testing, a product with 6 networks requires approximately 16 head movements while NetzTest reduces this to just 6 movements. With NetzTest shorts and opens are tested simultaneously, further reducing the test time. This high throughput capability reduces the capital investment on the number of test platforms required.

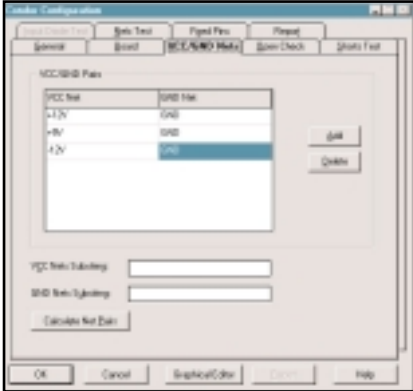


# 4500 series

NetzTest check is an efficient algorithm that checks every node for a short against every other node in less time than most testers take to check for adjacent pin shorts only.

### Fixed Pin Access

The IFR 4500 has the ability to augment the flying probes by using fixed pins. This additional access greatly reduces test time particularly when access is provided to VCC and GND.



### Test Techniques

Today's manufacturing is driven by cost, quality and customer expectations. The IFR 4500 provides a comprehensive suite of test techniques and tools to ensure these important criteria are met. In addition to the standard MDA passive component tests, power can be applied to the unit under test to allow full in-circuit testing.

The quality of the unit under test can further be assured by using a range of additional test techniques including:

- Boundary scan
- Flash programming
- Vectorless testing
- Waveform analyser
- Serial communications module

### Maintenance support

With a relatively small footprint, 16A single phase mains connection and filtered air supply, the IFR 4500 is easily serviced and requires very low maintenance.

IFR provide full Service and Programming Bureau support to ensure that the maximum benefit can be obtained from the IFR 4500 Flying Probe Test System.

## Specifications

### Basic 4500 Series

Probes four test heads from the top with up to 1000 fixed pins

### Controller

Industrial PC with Windows NT 17", 44 cm SVGA 1024 x 768 monitor

### Software

C-Link: Links to CAD Data to process the geometric and electronic information required for test with roaming test head optimization simulation.

### CITE

System software including NetzTest license.

### Accuracy

Resolution in X/Y plane: 1 µm  
Repetitive Accuracy: 25 µm  
Resolution in Y plane: 1 µm  
Maximum probe Height: 50 mm

### Operating Conditions

Mains Supply: 230 Volts, 47 Hz - 63 Hz (IEC309 16 A Single Phase)  
Dimensions: 1.60 m x 1.55 m x 1.20 m  
Weight: 1600 kg  
Air Pressure: Oilfree, pre-filtered with 40 mm-Filter, min 5 bar, consumption: 200 NI/min



IFR Americas, Inc., 10200 West York Street, Wichita, Kansas 67215-8999, USA. E-mail: info@ifrsys.com  
Tel: +1 316 522 4981 Toll Free USA: 1 800 835 2352 Fax: +1 316 522 1360

IFR Ltd, Longacres House, Norton Green Road, Stevenage, Herts SG1 2BA, United Kingdom. E-mail: info@ifrsys.co.uk  
Tel: +44 (0) 1438 742200 Freephone UK: 0800 282 388 Fax: +44 (0) 1438 727601

As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice. All trademarks are acknowledged. Parent Company IFR Systems, Inc. © IFR Ltd. 2000.

