DVT Solutions, LLC
GigaProbes

USA Designed
& Manufactured
Since 2005

Differential Probe System Configuration Form for PCB Testing

40 GHz, 50 GHz, 70 GHz and 110 GHz

To help us configure the best differential or single-ended desktop probe system for your application, please answer the following questions by selecting Y for Yes or N for No and entering specific values or other content as requested.

Your answers will allow us to provide a budgetary quote that includes the appropriate probe(s) based on your required measurement bandwidth, as well as camera and probe positioners and horizontal or vertical PCB fixturing options.

If you're unsure whether a differential probe is the right tool for your application, we recommend watching this 10-minute video: Differential Probe vs. Wafer Probe – Use Cases and Benefits. It explains the differences between the two probes and when to use each during the PCB development process.

You may email this form to: sales@gigaprobes.com and we will contact you to discuss any unanswered questions, and/or schedule a web call.

DVT Solutions holds two U.S. patents and pioneered the first true differential probes over 20 years ago, coinciding with the electronics industry's shift toward differential signaling for improved noise immunity and faster digital data rates. Our probes are designed for use with VNA or TDR systems to verify that PCB traces meet engineering specifications for impedance and S-parameter bandwidth. Accurate probe measurements on your assembled prototype board are essential for:

- Verifying your PCB simulation models,
- Confirming that your PCB vendor can reliably manufacture the design in production,
- Ensuring the board is ready for component assembly and high-speed functional testing.

By validating the bare board early, you can catch design or manufacturing problems before assembly. If a trace fails functional testing after assembly, it can be difficult—and often costly—to determine whether the issue lies in the design or in the manufacturing process.

Your Contact Information

It is important that you provide your contact information so we know who to send the probe quote to.

Name

City Country Email

Phone (Country Code) (Number)

Questionnaire

If you already have a probe system and are only looking to add a DVT differential probe, you may answer only Section One: Probe Information, and skip Section Two: Fixturing Information.
If you're not sure how to answer a particular question, feel free to leave it blank.

Section One: Probe Information

Measurements and Probe Connections

1. Which of the following do you need to measure?
   - ☐ Insertion Loss (IL) and Return loss (RL)
   - ☐ Impedance
   - ☐ All of the above
2. Will you place a probe at both ends of the trace to measure IL/RL? Yes ◯ No ◯
3. Is one end of the trace attached to an RF connector, and with the probe tips placed on test pads at the other end? ◯ Yes ◯ No

Measurement Instruments

4. What is the **manufacturer and model** of your VNA or TDR system?

5. How many **VNA ports** are available?
6. What is the instrument's **maximum bandwidth measurement** (in GHz)?
7. What type of **connector** will you use to attach the probe to the VNA or TDR system cable(s)?
   - ◯ 2.92 mm (up to 40 GHz)
   - ◯ 2.4 mm (up to 50 GHz)
   - ◯ 1.85 mm (up to 70 GHz)
   - ◯ 1.0 mm (up to 110 GHz)
8. Will you use a TDR to measure differential or single-ended impedance? ◯ Yes ◯ No
9. Will you need to locate open or short failures in traces using TDR? ◯ Yes ◯ No

Probe Requirements: Differential Probes

10. What is the required NRZ/Nyquist measurement bandwidth (in GHz)?
11. What is the *minimum* test pad pitch (center-to-center spacing (in mm)?
12. What is the *maximum* test pad pitch (in mm)?
13. What is the test pad diameter (in mm)?

Note: To determine which fixed-pitch DVT-FPPNN differential probe (40, 50, or 110 GHz) supports your range of trace pitches and test pad diameters, download the Probe Pitch Calculator.zip or you can get it from the *Application Notes* section of Gigaprobes.com. Extract and open the *Probe Pitch Calculator.pdf* using a PDF viewer such as the Adobe Reader.

Use the scrollbar on the right to visualize how each fixed-pitch probe tip (0.6 mm, 0.8 mm, and 1.0 mm) aligns with 11 different trace pitches and pad diameters. This tool helps you determine which fixed-pitch probe covers the full range of your PCB's test pads, minimizing the need for multiple probes.

Probe Requirements: Single-Ended Probes

Available bandwidths: 18–20 GHz

14. Will you be measuring single-ended S-parameters? ◯ Yes ◯ No
15. What is your highest NRZ/Nyquist measurement bandwidth (in GHz)?

16. What is the minimum test pad pitch (in mm)?
17. What is the maximum test pad pitch (in mm)?
18. What is the test pad diameter (in mm)?

Time-Domain (TDR) Measurements

19. Are you measuring differential and/or single-ended impedance?
    - ☐ Differential
    - ☐ Single-ended impedance
20. Do you need to probe traces for TDR-based open/short failures? ◯ Yes ◯ No

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Section Two: Fixturing Information

Horizontal Probing

21. What are the minimum and maximum PCB sizes (in inches or mm) to be supported?

    Width: Minimum: Maximum

    Length: Minimum: Maximum

    ◯ Inches ◯ Millimeters

Vertical Probing

22. Will measurements be taken on one side only or both sides (front & back) of the PCB?

    Note: If you have a wafer probe system, you will need one of our vertical fixtures and our DVTFP 250 positioner in order to probe boards vertically.

    ◯ One side only ◯ Both sides

Any additional information you would like to add:

Thank you for providing this information. Email this form to: sales@gigaprobes.com and we will contact you to discuss any unanswered questions, and/or schedule a web call to finalize the configuration for a budgetary quote.

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