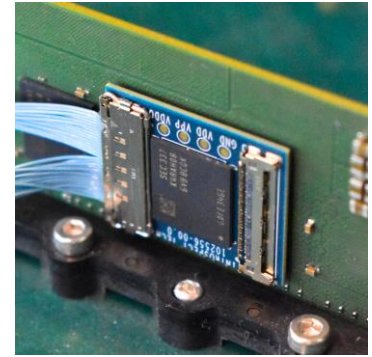


OSCILLOSCOPE PROBING SOLUTIONS

Integrated-Tip Interposer for Memory Devices

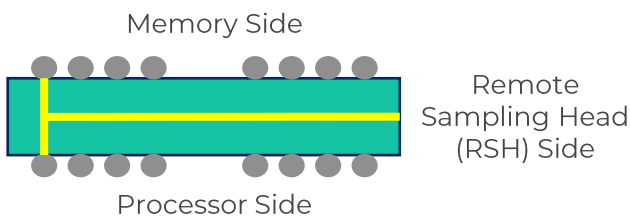
High-impedance, high-bandwidth signal access solution



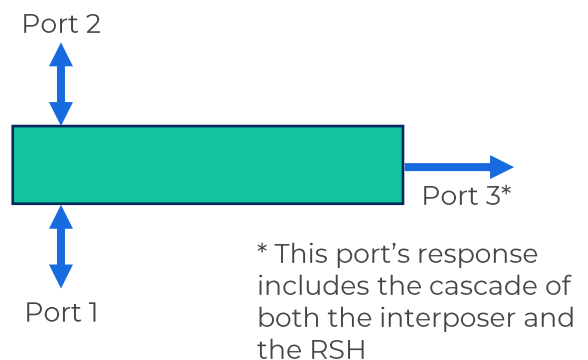
Integrated Tip Under Each Ball in a DDR, LPDDR, or GDDR Memory

Introspect's Integrated-Tip Interposers are designed to enable probing of next-generation memory interfaces running at ultra high transfer rates. Sitting underneath a memory device, the interposers provide a through path for signals between a processor and the memory device, while also generating a copy of the signal for oscilloscope or protocol analyzer probing. By integrating the high-impedance tip inside the interposer, this family of memory interposers creates a high-fidelity copy of the signal under test – in the analog sense – and solves the issue of reflections that often occur in traditional memory interposers.

PHYSICAL CONSTRUCTION



THREE-PORT NETWORK MODEL



Typical Application: Oscilloscope-Based Electrical Compliance

Footprint for memory device

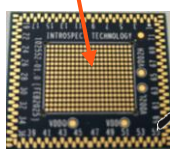


Figure 1: Setup of the integrated-tip interposer with the RSH connected to a high-bandwidth oscilloscope.

Selection of Interposer Packages

| NAME | DESCRIPTION | BALLS | PACKAGE TYPE | RISER | NOTES |
|-----------|--------------------------|-------|--------------|-------|--|
| LP5-315-O | LPDDR5 memory interposer | 315 | 1ch x 16 | Yes | Access to all pins for oscilloscope probing |
| LP5-315-P | LPDDR5 memory interposer | 315 | 1ch x 16 | Yes | Compatible with Introspect Protocol Analyzer |
| LP5-441-O | LPDDR5 memory interposer | 441 | 4ch x 32 | Yes | Access to all pins for oscilloscope probing |
| LP5-441-P | LPDDR5 memory interposer | 441 | 4ch x 32 | Yes | Compatible with Introspect Protocol Analyzer |
| LP5-496-O | LPDDR5 memory interposer | 496 | 4ch x 16 | Yes | Access to all pins for oscilloscope probing |
| LP5-496-P | LPDDR5 memory interposer | 496 | 4ch x 16 | Yes | Compatible with Introspect Protocol Analyzer |
| DDR-78-O | DDR5 memory interposer | 78 | 1ch x 4/x8 | Yes | Access to all pins for oscilloscope probing |
| DDR-78-P | DDR5 memory interposer | 78 | 1ch x 4/x8 | Yes | Compatible with Introspect Protocol Analyzer |
| DDR-RDIMM | Full RDIMM interposer | N/A | 228 pin | Yes | Compatible with Introspect Protocol Analyzer |
| LP6-357-O | LPDDR6 memory interposer | 357 | TBD | Yes | Coming soon |

Typical Performance



Figure 2: T11 (left) and S11 (right) performance of the LP5-315-P interposer.