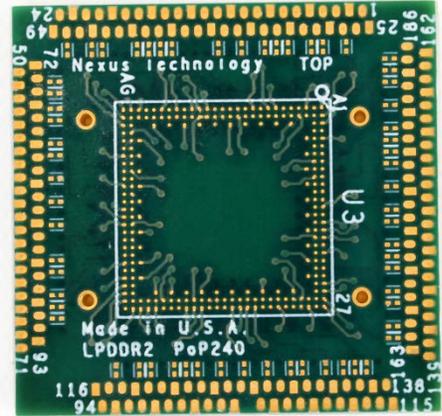


# LPDDR2 PoP Oscilloscope Component Interposer

## 240 Ball Package on Package Memory Device Support

- Optimal Analog Validation
- Use with Existing Embedded / Mobile designs
- Designed for speeds of LPDDR2-1067+
- Scope probe tips designed into the interposer
- Socket Design – also available without a socket
- Support for LPDDR2 Memory
  - Package on Package (PoP)
  - 14mmX14mm
  - 2x32 Data Width
  - 0.5mm pitch
- Easy to install
- Oscilloscope de-embedding filter available



## The Pop Challenge

Low Power DDR (LPDDR2) memory components are expanding rapidly in the market providing low power, high bandwidth, high density memory solutions. The Package on Package version results in target space saving but introduces significant roadblocks for test/debug and analysis of the memory interface.



Figure 1: Side view (photo) of PoP memory soldered on to a processor

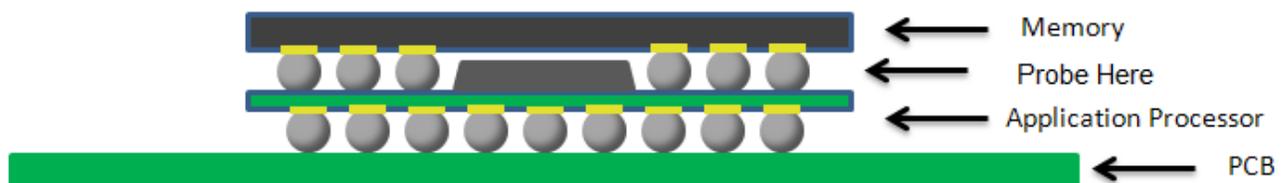


Figure 2: Side view (Drawing) of the PoP memory soldered onto a processor

## Premier Target Socketed Component Interposer Design

Optimal LPDDR2 validation requires analysis of the LPDDR2 signals, as seen by the memory components. This allows for the highest confidence that the signal captures are representative of the signals on the target. Nexus Technology component interposers allow for oscilloscope probing of the LPDDR2 signals extremely close to the memory components BGA solder balls.

## Memory Component Interposer Installation

The process of attaching the interposer to your target has been greatly simplified using Nexus Technology's patented, high-bandwidth, component interposer sockets. These patented sockets remove the need to contract specialized rework houses to perform the installation. Instead, you can use standard BGA assembly practices to install the component interposer socket. Nexus Technology can perform the attachment service for a nominal fee.

Once the interposer socket is installed on the target, logic analyzer or oscilloscope interposers can be easily inserted or removed from the socket. Note that the interposer socket elevates the interposer above the adjacent components to provide the mechanical clearance necessary for easy probe attachment.

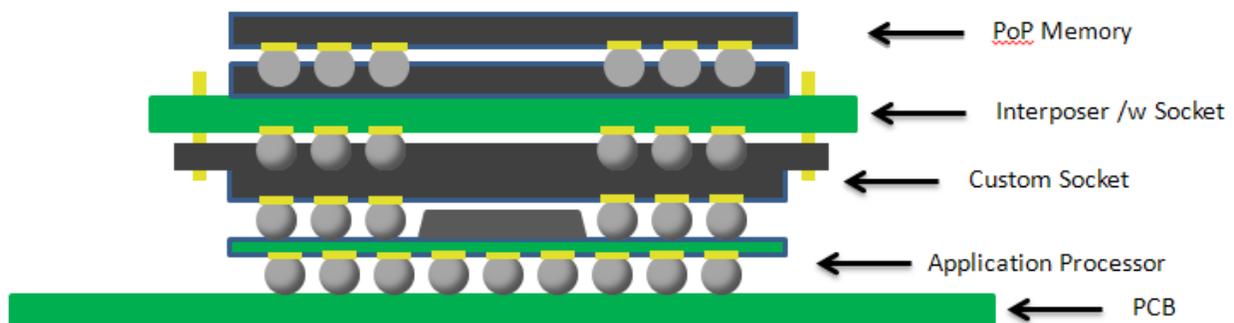


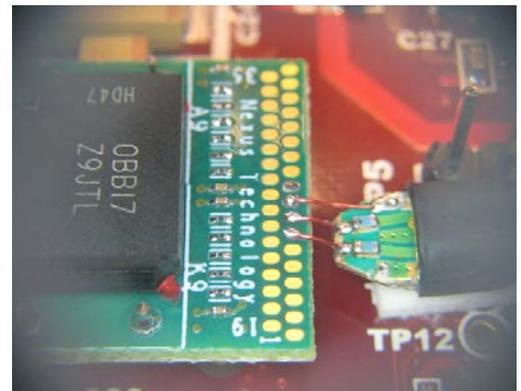
Figure 3: Side view of the complete interposer installation

## LPDDR2 BGA Component Installation

The interposer can be ordered with a second socket for easy BGA memory component installation and removal. These sockets allow for the quick swapping and testing of different memory components on the interposer.

## Oscilloscope Component Interposer Hardware

Connection to an oscilloscope is enabled by using oscilloscope memory component interposers. These controlled impedance; matched trace length interposers provide analog visibility using an oscilloscope. All signals are brought out to probe points that are designed to accommodate solder down probe tips. For more information, please see the [Nexus Soldering Guide](#). Removable oscilloscope probe tips can also be used to easily move the oscilloscope probe between signals for quick and accurate measurement.



## Oscilloscope Analog Validation

Filter software, available from Tektronix for use with select Tektronix oscilloscopes, removes the effect of the oscilloscope interposer. Although these interposers are designed to optimize signal integrity, this feature removes even the slightest effect the adapter has from the oscilloscope display.

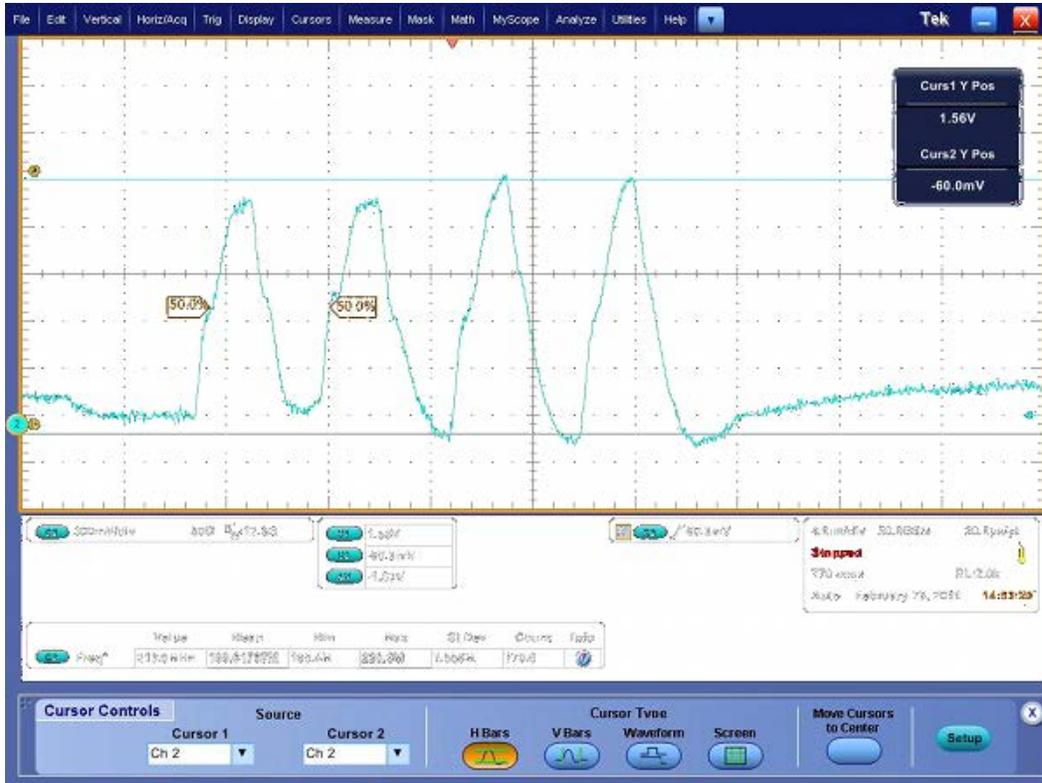


Figure 4: Strobe as seen using the Oscilloscope Component Interposer

# **Nexus Technology's Component Interposer Advantages**

## **Probed at the BGA Pads**

The best place to probe to eliminate reflections associated with standard embedded LPDDR2 mid bus probing or other methods is at the BGA pads. Interposers require no target footprints or special routing requirements that mid bus probing requires.

## **Use with Existing Embedded Designs**

No Need to change existing designs. Simply add the interposer to your embedded target with no re-design or added probe points.

## **Socket Design**

The interposers are reusable. Once an interposer socket is installed, the interposer can be attached and removed by hand - allowing the interposer to be used on multiple targets quickly or allowing quick swapping of logic analyzer and oscilloscope interposers on the same target.

## **Easy to Install**

Just install the interposer socket by using industry standard BGA attachment methods or by utilizing Nexus Technology's attachment service.

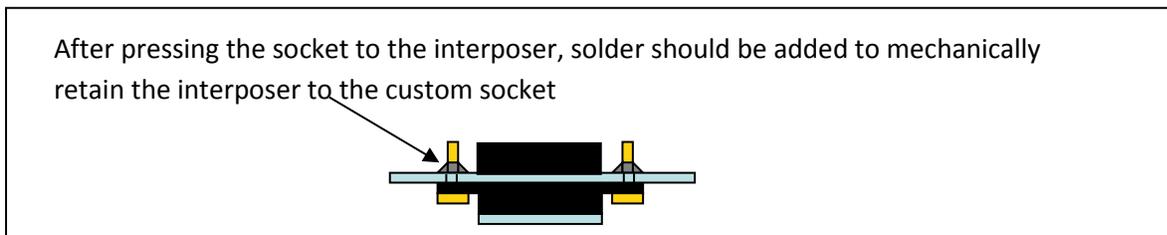
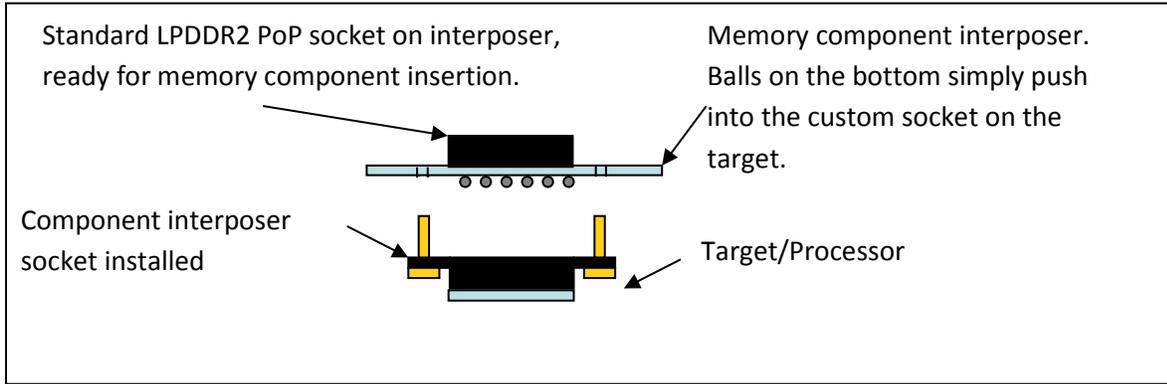
## **Oscilloscope Interposer software**

Oscilloscope de-embedding filter software removes the effects of an interposer on the system. Please contact Nexus for more information.

## **Interposer Retention to the Target**

The interposer socket has four posts that are Tack-soldered to four mounting holes on the interposer. This ensures that the interposer will not be mistakenly pulled off of the target.

# Attaching & Reusing Interposers



# Product Dimensions

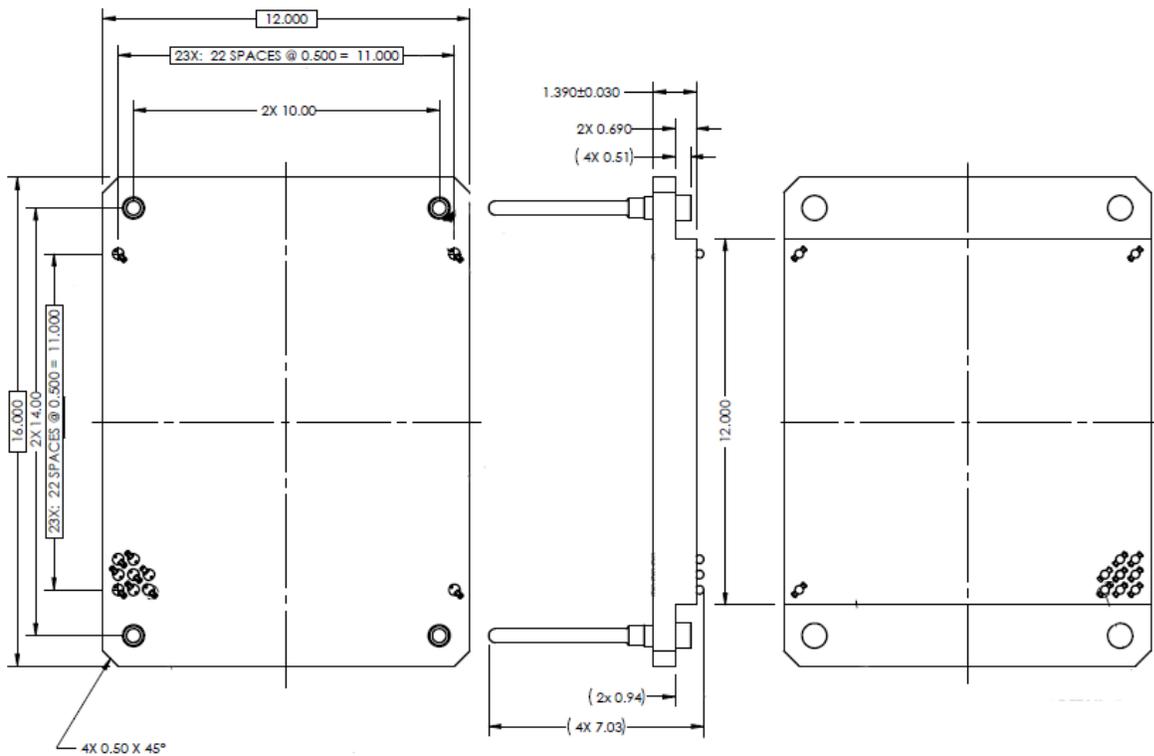


Figure 5: LPDDR2-240 ball PoP Target Socket Dimensions

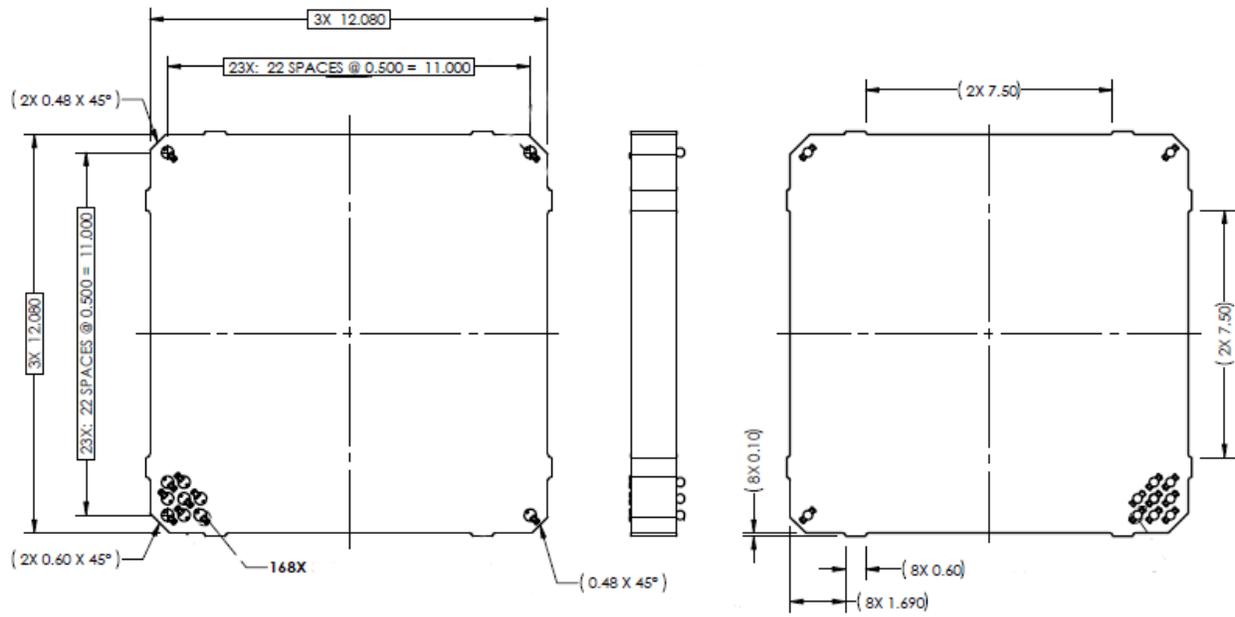


Figure 6: LPDDR2-240 ball PoP Memory Component Socket Dimensions

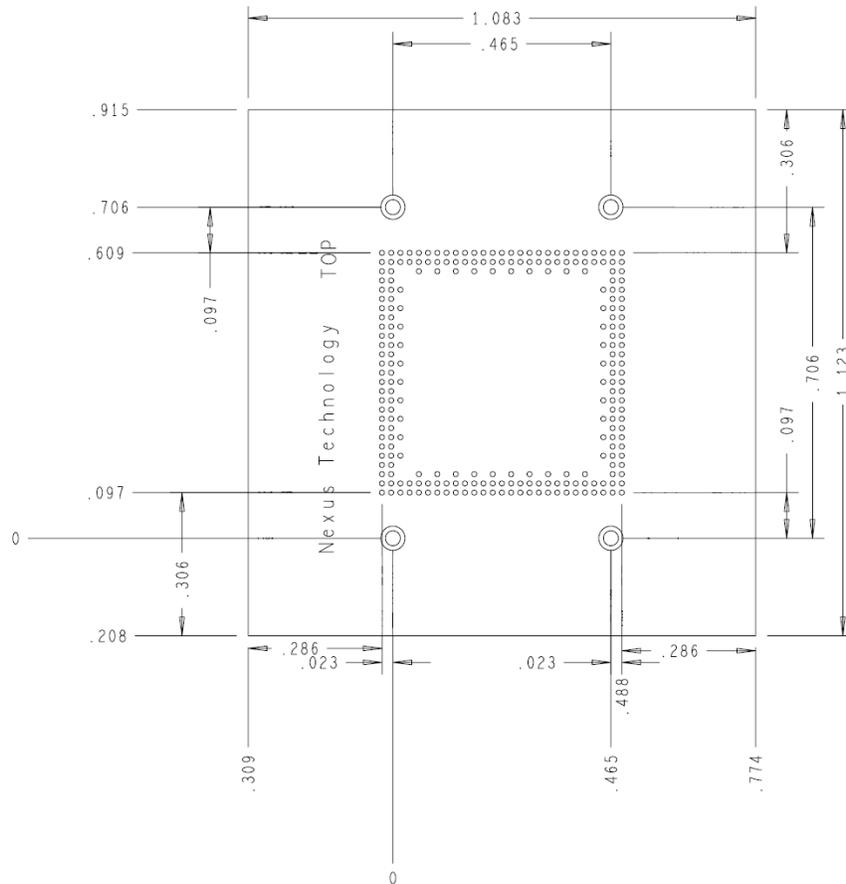


Figure 7: LPDDR2 240-Ball PoP Oscilloscope Component Interposer Dimension

# Product Configuration Tables

## LPDDR2 PoP 240-ball Oscilloscope Interposers

Nomenclature	Interposer Type	Data Width	DDR Speed	Component Sockets Included	Installation Service Included
NEX-LPDDR2PoP240SC	Oscilloscope	2x32	LPDDR2-1067	No	No
NEX-LPDDR2PoP240SCSK	Oscilloscope	2x32	LPDDR2-1067	Yes	No
NEX-LPDDR2PoP240SCSK-AT	Oscilloscope	2x32	LPDDR2-1067	Yes	Yes

## Optional Additional LPDDR2 PoP 240 Ball Component Interposer Sockets

Nomenclature	Data Width	Solder Balls Added	Quantity of Sockets
NEX-LP2-240BGASKBA	2x32	Yes	1
NEX-LP2-240BGASKBA-3	2x32	Yes	3

## Further Information

Please contact us by telephone, email or mail as listed below. Email is preferred.  
Normal business hours are 9:00 - 5:00 EST.

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