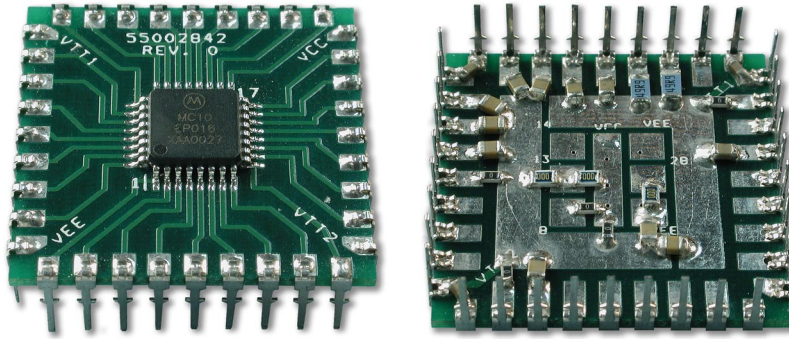


GIGADAPTERS—TIPS FOR ASSEMBLY AND USE



Component attachment

It is easier to attach passive components such as decoupling capacitors and termination resistors, etc., to the back side before an active device is attached to the top side. This is because the top side can lie flat on a bench without a device on it, and attaching components to the back side can be done easily without a holding fixture.

Secondly, without the active component on top, the assembly can be checked for shorts without the interaction from the active components.

Hand soldering Ceramic Chip Capacitors

The problem

When subjected to high heat from a soldering iron, the ceramic dielectric layers sandwiched between metal layers tend to crack, because the two materials have very different temperature coefficients of expansion. The larger the physical size of the capacitor, the worse the problem becomes, because there is more ceramic material to expand at a much slower rate than the metal layers.

If the capacitor is partially damaged, it shows a DC resistance of approximately 450 Ω . If it is severely damaged, it becomes a dead short.

The solution

If possible, the capacitors should be preheated to 150° C before soldering. In any case, the following precautionary steps should be taken:

- (1) Tin one of the capacitor pads on the PCB, preferably the ground or power pad, because these pads take longer time to heat up than the isolated pads.
- (2) Place one end of the capacitor on the tinned pad with tweezers. With the iron, push the solder on the pad towards the capacitor until it is soldered, without touching the capacitor with the iron if at all possible.
- (3) Heat up the other pad, again without touching the capacitor with the iron, and deposit solder onto the pad. As in step (2), push the solder towards the capacitor to solder it. If it is not successful in one try, discard the capacitor and start over again.
- (4) Use #0805 size capacitors whenever possible. This size of capacitor seems to have the least problem.



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Installing the Gigadapter on the Motherboard

Although Gigadapters should be soldered to the motherboard for very high frequency applications (above 3GHz), low profile pin sockets are recommended for most applications. Not only it is easier for troubleshooting purposes, a socketed motherboard allows for quick evaluation of multiple devices. Order #131002-A.

I/O connections

For flexibility, we recommend the 6" and 8" coaxial interconnect modules for connecting device I/O pins on the Gigadapter to the pc-mount BNC or SMA connectors, or to other Gigadapters. These quick connect plug-in coaxial modules work well up to 2.5GHz. Order #88000105-6 or #88000105-8. Coaxial modules are best used with special stick pins for 50 Ω impedance matching (Order #131004-A).

Power supply

Since firing up every breadboard or prototyping circuit requires a power source, PRL supplies a series of regulated voltage SIP modules that can replace bulky bench supplies. These modules are designed for plugging into the Gigadapter motherboards and can be powered either by the PRL-760A, ± 8.5 V/ ± 1.2 A AC/DC adapter or external bench supplies. This series includes a single-output module (adjustable +3.3 V to +5.5 V) and two four-output modules suitable for testing linear, digital, A/D's and other mixed-signal devices. Using the low profile pin sockets, these regulated voltage SIP modules can be easily interchanged for different applications.

Stimulus Modules

Since firing up just about every digital breadboard or prototyping circuit requires a clock input or multiple clock inputs, PRL supplies a series of clock source modules that cover CMOS/TTL, NECL, PECL and LVPECL applications. Besides being able to replace costly and bulky instruments, these clock source modules all have multiple outputs and are designed for driving long lines.

Logic Level Translators

In the world of high speed wireless and optical communications, interconnection of equipment with I/O's from different logic families becomes very common. The most common requirement is that from NECL to TTL and back. PRL has developed a series of logic level translators that cover just about every conceivable requirement. To make life simple, all modules from PRL share the same AC/DC adapter. With the addition of a voltage distribution module, such as the PRL-730 or PRL-736, a number of modules and motherboards can be powered by single AC/DC adapter.



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