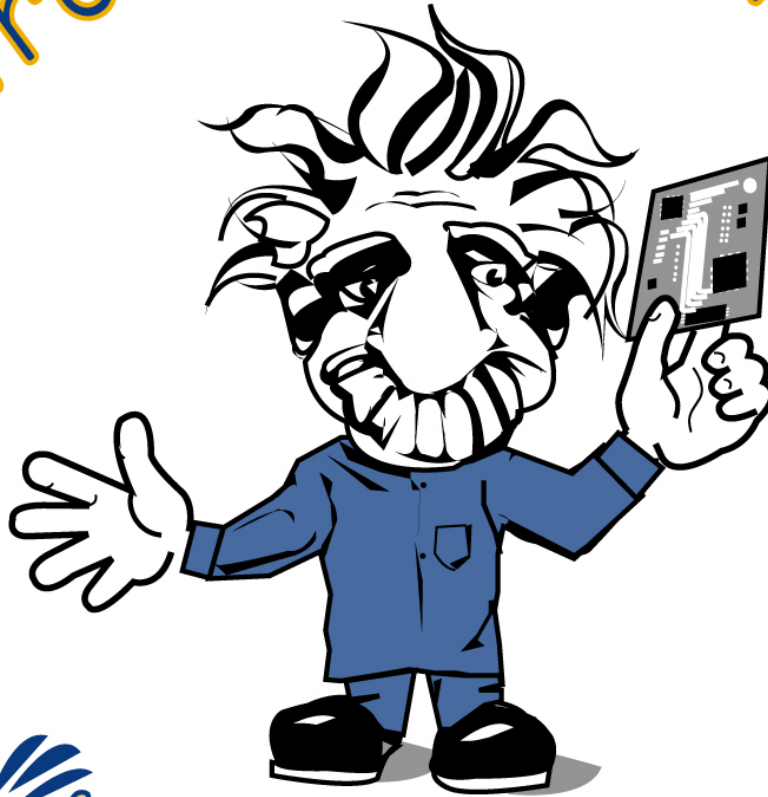


Electronics For Everyone™



SchmartBOARD™

SchmartBoard, Inc.
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510-659-1644(fax)
www.schmartboard.com

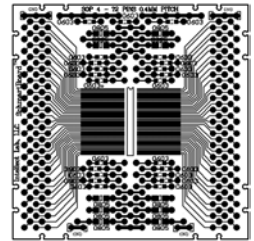


Every company that designs a product involving electronics must first create a functional prototype. Hardware design engineers today either use prototype boards to test a circuit or they go straight to a custom printed circuit board (PCB) for the initial prototype. If they go straight to a custom PCB, the cost can be very high. Every time a change is made, they have to remake the custom PCB, which is both expensive and time consuming.

A prototyping board on the other hand, can save the engineer valuable time and money by allowing changes to be made quickly and inexpensively, but if they do use a prototyping board they have had limitations. Prototyping boards have existed for a long time, but as surface mount components have become smaller and smaller, these boards have not kept up with the technology and have not remained a practical tool for many applications. SchmartBoard™ makes prototype boards useful again because they work with today's miniaturized components. Similar issues exist for universities that teach electronic engineering and for electronic hobbyists. The SchmartBoard™ system is the long-awaited answer to these issues.

What is the Schmartboard™ *Electronic Circuit Building Block System*?

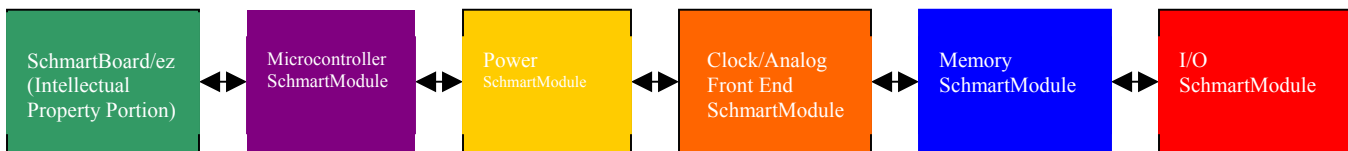
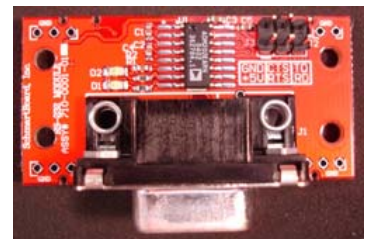
1) **SchmartTRACE™** -SchmartBoards are pre-traced printed circuit boards that support a majority of electronic component types, both through-hole and surface-mount. The pre-traced aspect of the board means there are less wire jumpers required than in other prototyping systems. This makes for a much cleaner board and keeps wiring errors to an absolute minimum.



2) **SchmartBRIDGE™** The SchmartBoard™ system allows one to work on a circuit block at a time, and then connect the blocks together using our patent pending technology, called **SchmartBridge™**. By having the ability to work on a block at a time, you can test the individual blocks and then connect them together. This makes testing and trouble-shooting a breeze.



3) **SchmartMODULE™** SchmartModules™ are circuit blocks that are already designed and ready to go. Examples of SchmartModules™ are I/O, memory, processors, etc. The idea here is why reinvent the wheel? If you are using an RS232 interface in your circuit, it makes more sense to take an RS232 SchmartModule™ and connect it via a SchmartBridge™ to your SchmartBoard™ circuit rather than designing and soldering this block from scratch. The more SchmartModules™ that you can use in a circuit design, the faster and easier it will be to get the circuit up and running.



4) **SchmartDEVELOPER™** We have created the first **Electronic Circuit Design Open Source**. In cases where a SchmartModule™ does not yet exist, you may be able to download a schematic for that function. We have SchmartDevelopers from around the world that design SchmartCircuit™ schematics for many different functions for use in the SchmartBoard™ system and post them for you to use for free. We are always looking for more SchmartDevelopers. Details are at our website.

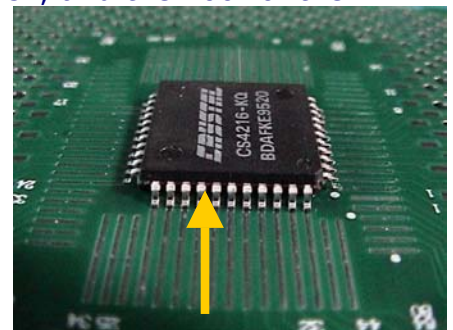
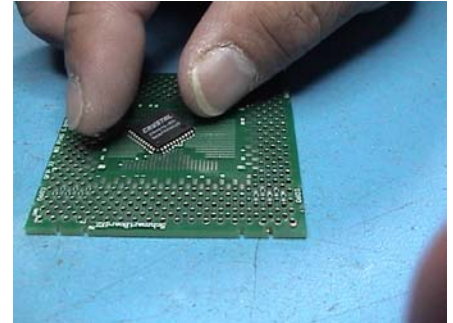
SchmartBOARD|ez™

5) Two problems impede people's ability to hand solder surface mount components. First, placing and holding the components in place correctly on the pad surface, and second, hand soldering in such small confined areas without creating short circuits.

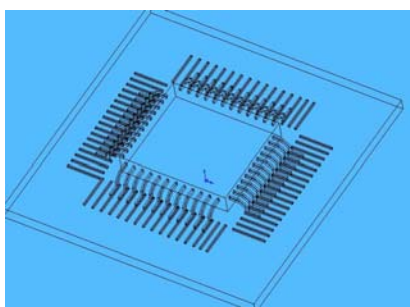
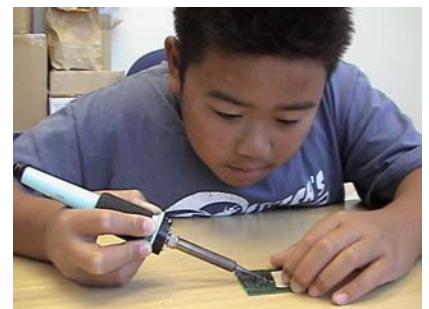
SchmartBoard/ez's patent pending technology solves these issues in the following way. Unlike all other circuit boards, the solder mask is higher than the pads, not lower. What this does is create canals. The walls of the canal are made by the solder mask, and the floor of the canal is the pad surface. The legs of the IC fit into this canal, thus allowing easy hand placement of the chip legs onto the pads.

To solder the IC, one uses a fine tip soldering iron, but no additional solder is required. Using the soldering iron, one heats up the existing solder on the pads in each of the canals and pushes the soldering iron from the lateral end of the canal to the medial end until the iron touches the chip's leg. The solder stays in the canal, thus assuring that no shorts are created. This is repeated for each canal that has a leg to be soldered. In the case of Ball Grid Arrays Integrated Circuits, the BGA is easily placed in the same manner as the ICs but a heat gun is used to heat up the existing solder on the pads instead of a soldering iron...

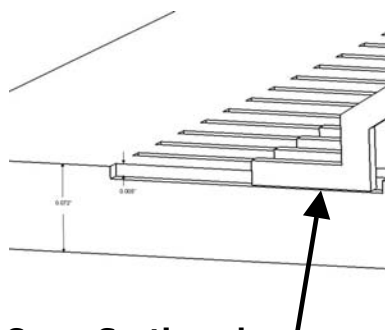
SchmartBoard/ez™ is so simple that a ten year old can pick up a soldering iron for the first time, and hand-solder a .4mm IC, more quickly and flawlessly than the vast majority of engineers who aren't using SchmartBoard/ez™. Hand soldering surface mount components is now accessible to virtually anyone.



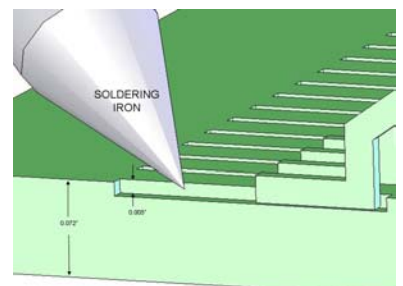
Chip legs are in the canals, thus touching the pads and holding the chip in place



Top View, Chip in place on SchmartBoard/ez™



Cross Section-chips on the pads, in the SchmartBoard/ez™ canals



Soldering Iron pushing solder towards chip legs in the canal

Our product line is always expanding. This is a partial representation. Please check our website for the most up to date listing

SchmartBoard™ for Through-hole



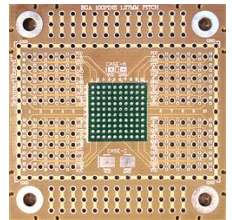
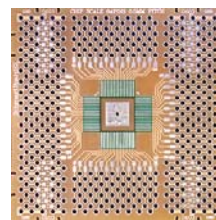
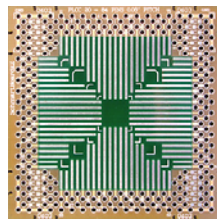
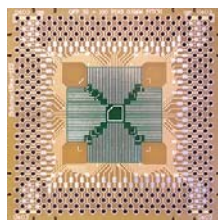
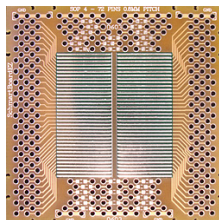
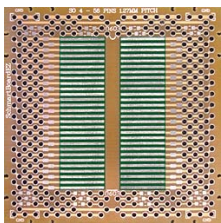
100% support of the thru hole components. Ground holes are connected to a copper plane on the bottom side. Components such as capacitor, resistor, diode, inductor, crystal, headers, jumpers, fuse, transistors, voltage regulators, DIP IC 70 pins or sockets, DIP switches, relay, RJ11, RJ45 connector...etc. are supported. The board is pre-traced to minimize the need for jumpers.

SchmartBoard™ for I/O and Power



- Power and Ground
- Power Connector and Power Jack
- ATX Power Connector
- Audio/RCA Jack
- DB 25 Connector
- JTAG 20 Pins 0.1" SP And IEEE1394 Connector
- RGB 15 Pin Connector
- Through Hole Switches
- RJ 11/45 and USB Connector

SchmartBoard|ez™ for ICs'



SO Packages

SOP Packages

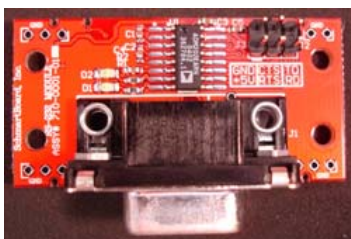
QFP Packages

PLCC Packages

Chip Scale

BGA

SchmartModule™



SchmartModules™ come either as populated with all of the components or unpopulated. In unpopulated boards, SchmartBoard|ez™ technology is used to make populating the module easy.

SchmartModule™ types include: I/O, Memory, Power, Processors, Clocks, other digital and analog circuits.

Services

SchmartBoard™ can design and fabricate custom boards in the SchmartBoard|ez™ format. Our patent pending proprietary technology is a perfect solution for many applications that require hand-soldering components.

A perfect example is semiconductor reference boards. Another use is for boards in which part of the PCB is left unpopulated and may need to be populated at a later time. Contact us for details on how we can help.

SchmartBoard™ can handle any of your engineering, prototyping or manufacturing needs.

