High Performance Software Defined Radio
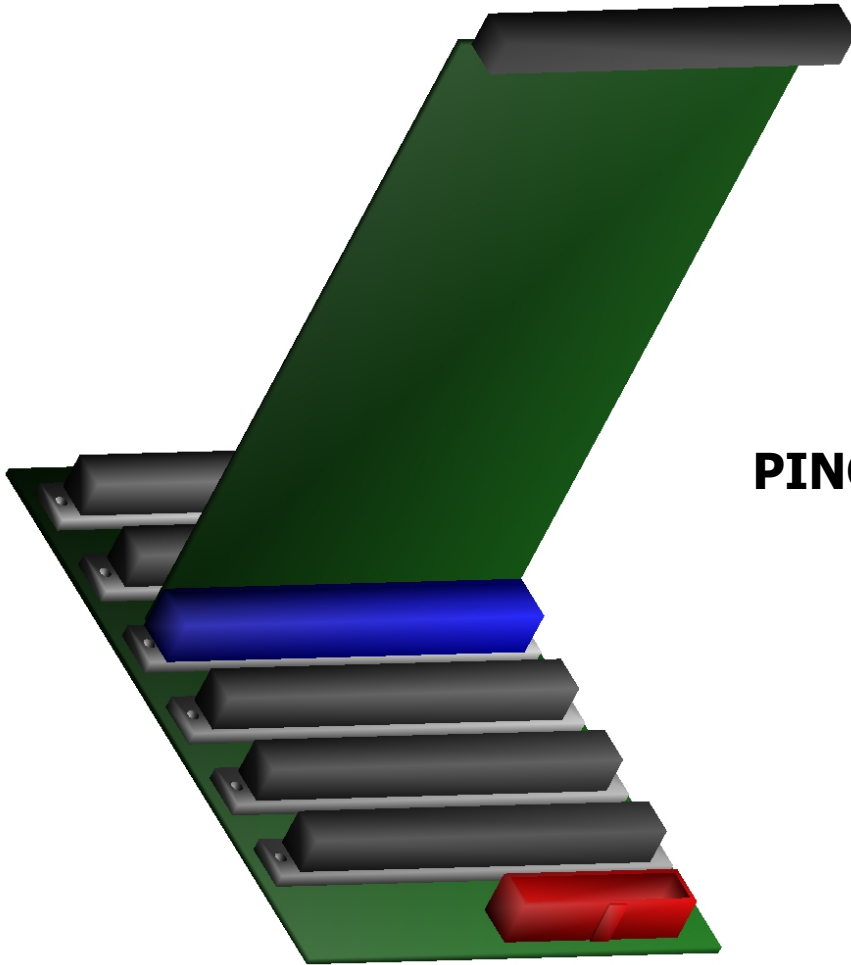
Open Source (GNU type) Hardware and Software Project
Project Description: http://hpsdr.org

Hardware Project #7

PINOCCHIO Board

Documentation
Assembly Guide

Schematics / Board Design	Lyle Johnson, KK7P
Text	Lyle Johnson, KK7P
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	HPSDR WIKI
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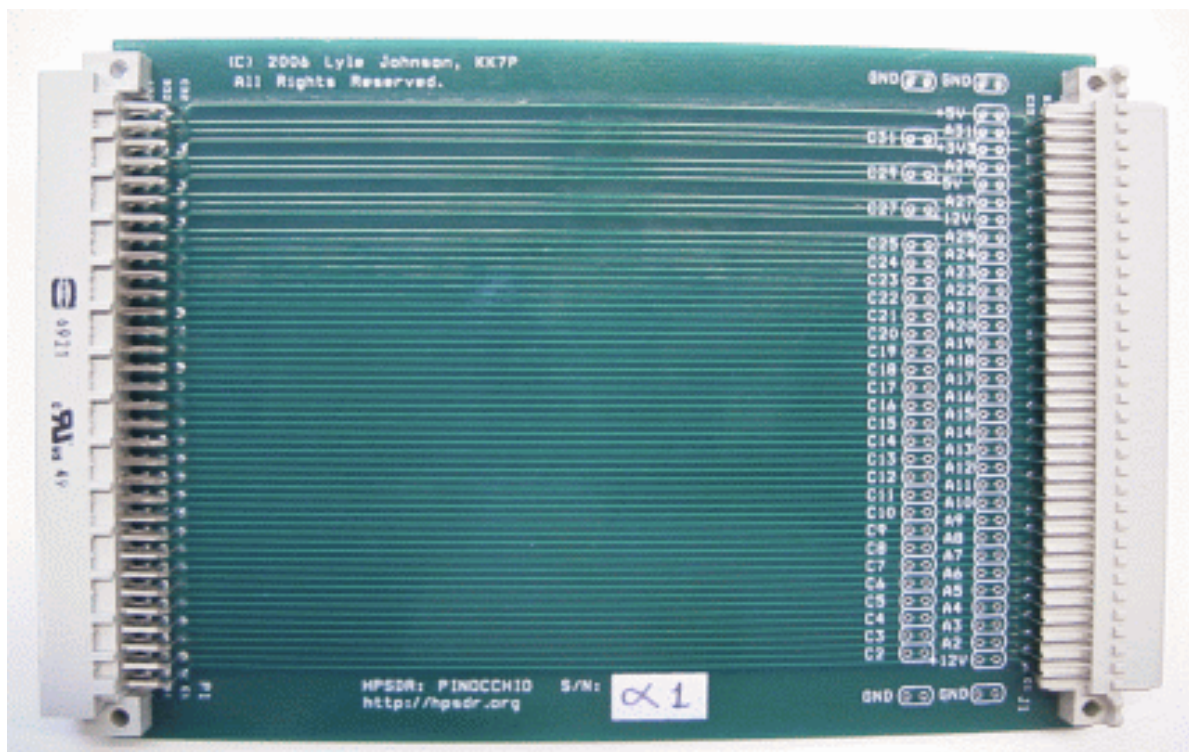# Contents

Where to find everything

PINOCCHIO - the Extender
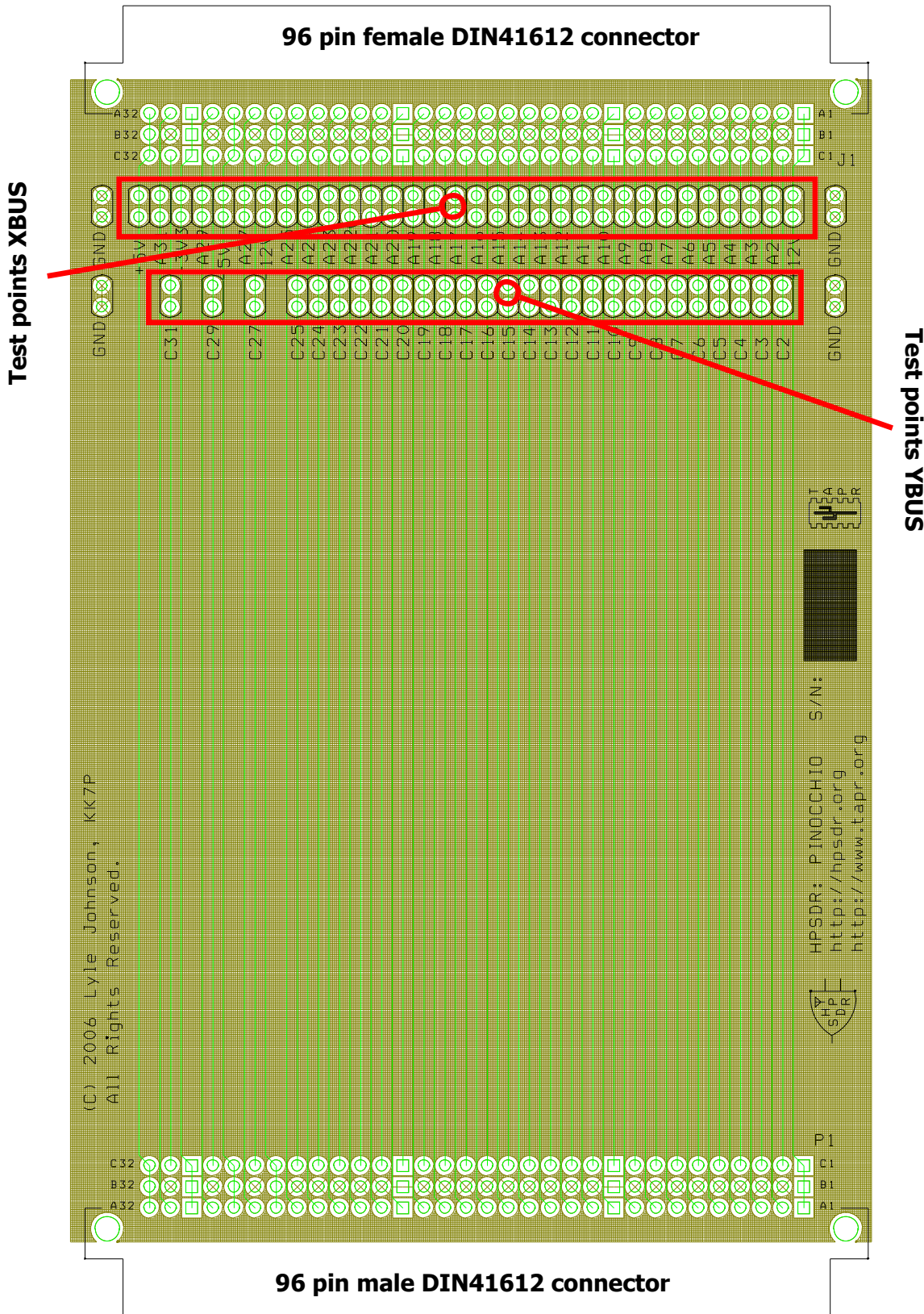
About the PINOCCHIO Extender Card

Imagine that you have an ATLAS board which is fully filled with different cards with different functions. Since HPSDR is an open and experimental project it will be very likely that you have to do some measurements on one of those cards sitting on ATLAS in about 20 mm (4/5 of an inch) distance to each other. How do you manage to get to the test points? Here Pinocchio comes in very handy.

Pinocchio is an extender card to allow measurements and troubleshooting of an active card in an ATLAS backplane. Test points are provided to allow access to every backplane signal, and the test points are located well above the standard module height. The test points are clearly labeled.

The schematic is avalable at http://www.hamsdr.com/personaldirectory.aspx?id=274 . The PCB files are available at http://www.hamsdr.com/personaldirectory.aspx?id=324 .
The project leader for the PINOCCHIO card is Lyle Johnson, KK7P.
Here is an image of a PINOCCHIO Alpha board:

PINOCCHIO - the Board

96 pin female DIN41612 connector

Test points XBUS

Test points YBUS

96 pin male DIN41612 connector

HPSDR: PINOCCHIO S/N:
http://hpsdr.org
http://www.tapr.org

Rev. 1.0 of July 07, 2006

PINOCCHIO - the Construction

How do I get the Printed Circuit Board?

Unfortunately all Alpha Boards are gone.

The next run of boards will be available from TAPR. But you can document your interest in a board at http://www.hamsdr.com under the **Projects** tab.

If not yet done you will have to register in order to be able to view the **Projects** tab where the currrent board ordering status of the **HPSDR** project is listed. So just click on **Log-In/Join** at the upper right, select **Join** from the menu and provide the appropriate information on the form, click on the **Save** button at the bottom of the form and you are all done.
The website is secure and spam-free and you will have access to a wealth of information about Software Defined Radio.

You can always make your own board because the PCB files are Open Source and are available at http://www.hamsdr.com/personaldirectory.aspx?id=324 in Gerber format.

Please also check
HPSDR mailing list
HpsdrWiki:Community Portal
for information regarding the current standing of the HPSDR project.

Bill of Materials (BoM)

This job is quite easy. More or less there are just two parts to buy and solder to the board.

US BOM

Position	MOUSER Part No.	Description	Units	Price/Unit	Total
P1	617-09-03-196-6921	Harting DIN 41612 Signal Connectors 96P 2A MALE R/A SLDR	1	$ 1.84	$ 1.84
J1	617-09-73-296-6801	Harting DIN 41612 Signal Connectors 96P 2A FEMALE R/A	1	$ 2.71	$ 2.71

EU BOM

| Position	SEGOR Part No.	Description	Units	Price/Unit	Total
P1	VG96M-ABC	Stecker 96pol ABC 90' Bauform C 3-reihig	1	€ 2.00	€ 2.00
J1	VG96F-ABC90'	VG-Buchse 96pol ABC 90' Bauform C -gewinkelt-	1	€ 4.30	€ 4.30

Builders Notes

1) The silkscreened pinout for the female connector at the top of Pinocchio is opposite to the pin numbers marked on the connector. They are consistent with the Atlas numbering, and the connector is in fact correctly labeled to work as an extender. Ignore the markings on the physical connector and use the numbering scheme on the PCB silkscreen.

2) The connector used at J1 did not match the mounting hole spacing. It is only slightly off and usable. The PCB layout has been revised to reflect the spacings used on the connectors I purchased. The layout also has the TAPR and (provisional) HPSDR logos.

3) The test points for the XBUS and YBUS can be populated in different ways.
      a) using pin headers

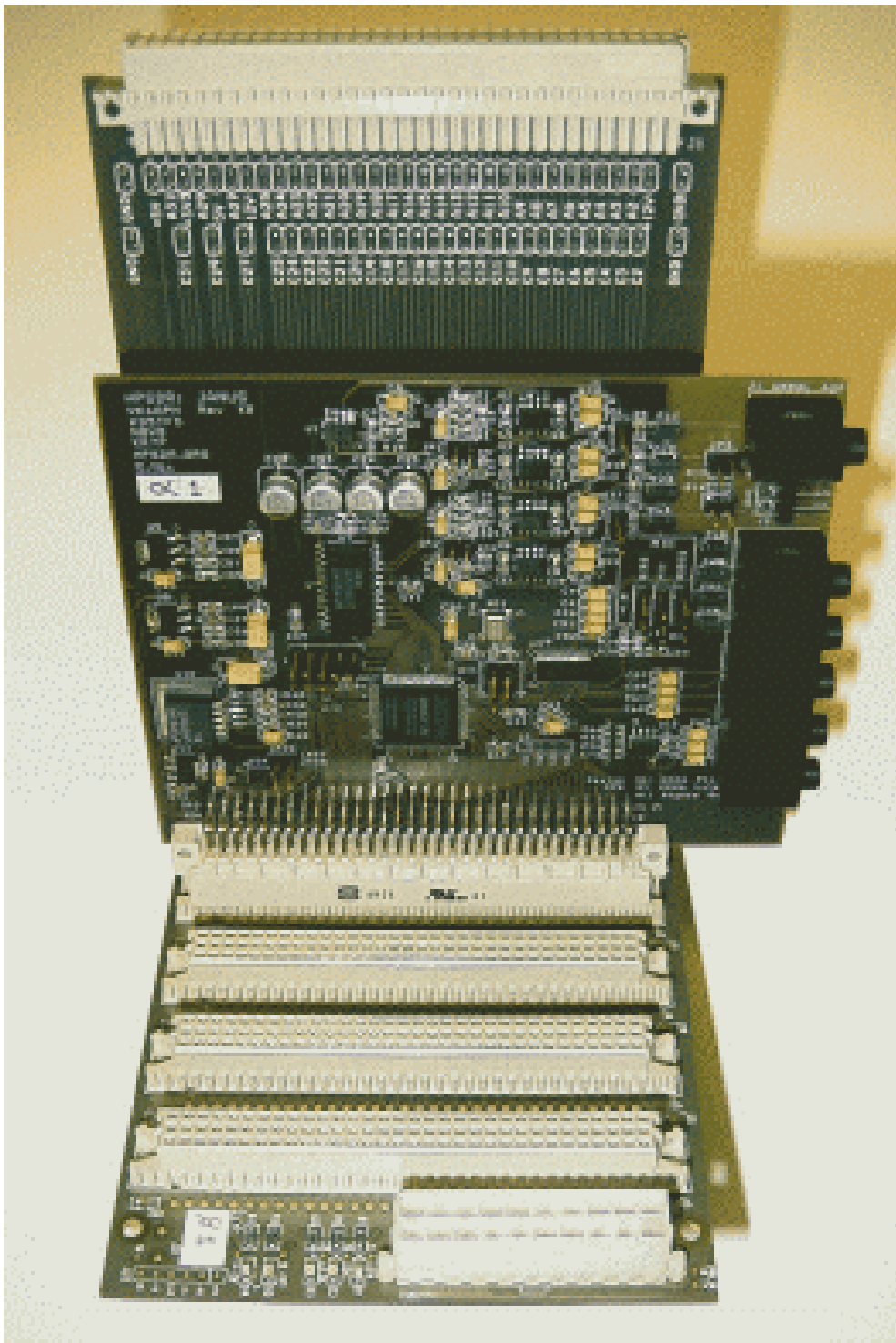   b) using precision IC sockets
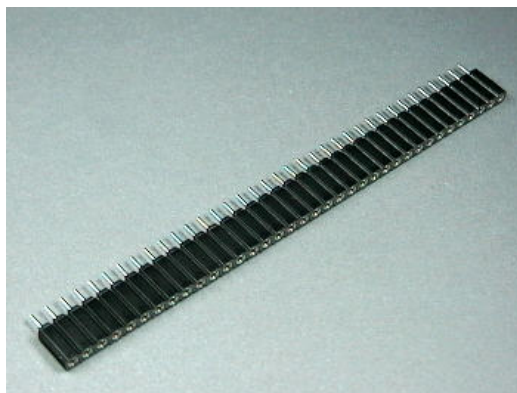
      c) poor mans choice using CuAg wire and threading it through the two board holes of each test point. If you leave a little wire loop on the silk screen side after soldering the two wire strands to the underside then it will be possible to hook up little probes to the wire loops.

Yet another Picture

Pinocchio with Janus in the first production Atlas board

PINOCCHIO - the Information

Useful Information and Links

Project Description and Information
http://hpsdr.org
http://hpsdr.org/wiki/index.php?title=HpsdrWiki:Community_Portal
http://www.hamsdr.com (requires registration for full information access)

Discussion List / Reflector
The HPSDR Discussion List (also known as a "reflector") is the major method of intercommunication between all interested persons of this project.
At times the number of messages can get large -- other times it may go a day or two without a message. Anyone can view the message traffic in the list archive online. It can be found at
http://lists.hpsdr.org/pipermail/hpsdr-hpsdr.org/

Parts Kits and Boards
The TAPR Corporation is distributing parts kits as well as printed circuit boards for the HPSDR project.

TAPR Corporation http://www.tapr.org

Revision History

Revision	Date	Changes	Initiator
1.0	July 07, 2006	Initial publishing	DL6KBF