

Issue #289
August 2014

PROJECT FILES

All of project files for this issue are available at:
ftp://ftp.circuitcellar.com/pub/Circuit_Cellar/2014/289/

ARTICLE MATERIALS

Author: Brian Beard

Article: "Build a Digital Pulse Generator"

SOURCES

LS7366R 32-bit Quadrature counter
LSI Computer Systems, Inc. | www.lscsi.com

PIC16F87 Microcontroller
Microchip Technology, Inc. | www.microchip.com

78S40 Universal switching regulator subsystem
Motorola/ON Semiconductor | www.onsemi.com

74HC4094 Shift latch register
STmicroelectronics | www.st.com

74123 Rotary switch and 74HC165 shift register
Texas Instruments, Inc. | www.ti.com

Author: Steve Hendrix

Article: "Personal Solar Power Setup (Part 2): Battery Charge Control"

SOURCES

MS-PAE Series inverter/charger and ME-ARC remote control
Magnum Energy, Inc. | www.magnumenergy.com

PIC18F97J60 Microcontroller
Microchip Technology, Inc. | www.microchip.com

Author: Sean Hubber and Crystal Lu

Article: "Hands-On Electrocardiography"

Copyright Notice Entire contents copyright © 2014 by Circuit Cellar, Inc. 111 Founders Plaza Ste. 300, East Hartford, CT 06108, USA. All rights reserved. Circuit Cellar is a registered trademark of Circuit Cellar, Inc. Disclaimer Circuit Cellar® makes no warranties and assumes no responsibility or liability of any kind for errors in these programs or schematics or for the consequences of any such errors. The information provided by Circuit Cellar® is for educational purposes.

RESOURCES

B. Land, "Using the Arduino DUE," Cornell University School of Electrical and Computer Engineering 5030, 2013.

S. Hubber and C. Lu., "Hands On ECG," Cornell University School of Electrical and Computer Engineering 5030, 2013.

SOURCES

Arduino Due

Arduino | <http://arduino.cc>

ExpressPCB software

ExpressPCB | www.expresspcb.com

MATLAB programming language

MathWorks, Inc. | www.mathworks.com

NI USB-6008/6009 Bus-powered multifunction DAQ USB device

National Instruments Corp. | www.ni.com

INA116 Differential amplifier

Texas Instruments, Inc. | www.ti.com

Author: Bob Japenga

Article: "Linux System Configuration (Part 2)"

RESOURCES

The Apache Software Foundation, www.apache.org

The Ångström Distribution, www.angstrom-distribution.org

BusyBox, www.busybox.net

cURL, <http://curl.haxx.se>

The Fedora Project, <https://fedoraproject.org>

The GTK+ Project, www.gtk.org

Lighttpd, www.lighttpd.net

Midori, www.midori-browser.org

MySQL, www.mysql.com

The Network Time Protocol (NTP), www.ntp.org

The OpenSSL Project, www.openssl.org

QT Project, <http://qt-project.org>

SQLite, www.sqlite.org

Ubuntu, www.ubuntu.com

Wikipedia, "Heartbleed."

X.Org Foundation, www.x.org/wiki

SOURCE

NetFront

ACCESS Co., Ltd. | www.access-company.com

Author: Colin O'Flynn

Article: "Build a SoC Over Lunch"

RESOURCES

A. Lopes, "ZPUino," www.alvie.com/zpuino

C. O'Flynn, "All-Programmable SoC Solution," Circuit Cellar 285, 2014.

www.ProgrammableLogicInPractice.com

Zylin Computing, "Zylin ZPU," <http://opensource.zylin.com>

OpenCores.org, "SoC Interconnection: Wishbone," www.opencores.org

SOURCES

AVR Microcontroller

Atmel Corp. | www.atmel.com

Papilio Pro FPGA and LogicStart MegaWing

Gadget Factory, LLC | www.papilio.cc

Zynq platform device, Spartan-6 LX9 MicroBoard, MicroBlaze soft processor, PicoBlaze microcontroller, and Xilinx Software Development Kit (SDK)

Xilinx, Inc. | www.xilinx.com

Author: George Novacek

Article: "The Humble Resistor (Part 1): Fixed Resistors"

RESOURCES

TT Electronics, plc, "Ultra High Value Resistors," 2011.

Vishay, "Metal Film Resistors, Military/Established Reliability, MIL-PRF-39017 Qualified, Type RLR," ERL (Military RLR), 2012.

Author: Robert Lacoste

Article: "Shielding Experiments"

RESOURCES

The Clemson University Vehicular Electronics Laboratory (CVEL), "Shield Effectiveness Calculator, www.cvel.clemson.edu.

R. Lacoste, "Cable Shielding Experiments," Circuit Cellar 219, 2008.

— — —, "Microstrip Techniques," Circuit Cellar 223, 2009.
LearnEMC, "Shielding theory," www.learnemc.com.

SOURCES

HP71200C Spectrum analyzer HP70300A tracking generator module
Hewlett Packard Co. | www.hp.com
(Product now obsolete, available from distributors such as eBay)

Proteus Design suite

Labcenter Electronics | www.labcenter.com

ViaCAD 3-D Design software
Punch!CAD Labs | www.punchcad.com

Replicator 2X 3-D printer
MakerBot | <http://store.makerbot.com>

Author: Jeff Bachiochi

Article: "IR Remotes (Part 1): Remote Transmission"

REFERENCE

[1] M. Bellis, "History of the Television Remote Control," About.com.

RESOURCES

DatPlot, www.datplot.com.

Copyright Notice Entire contents copyright © 2014 by Circuit Cellar, Inc. 111 Founders Plaza Ste. 300, East Hartford, CT 06108, USA. All rights reserved. Circuit Cellar is a registered trademark of Circuit Cellar, Inc. Disclaimer Circuit Cellar® makes no warranties and assumes no responsibility or liability of any kind for errors in these programs or schematics or for the consequences of any such errors. The information provided by Circuit Cellar® is for educational purposes.



G. Dixon, "IRP Notation: Specification of IRP Notation."

SB-Projects, "IR Remote Control Theory," www.sbprojects.com.

SOURCES

PIC18F26K22 Microcontroller

Microchip Technology, Inc. | www.microchip.com

RealTerm terminal program

SourceForge | www.sourceforge.net