FreeRTOS for Arduino

Setup CodeBlocks IDE to use WinAVR compiler and Avrdude

Prepared by:

Russlan

Reviewed by:

<>

Dates

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# Revision History

|  |  |  |
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| 1.0 | NOT DEFINED |  |

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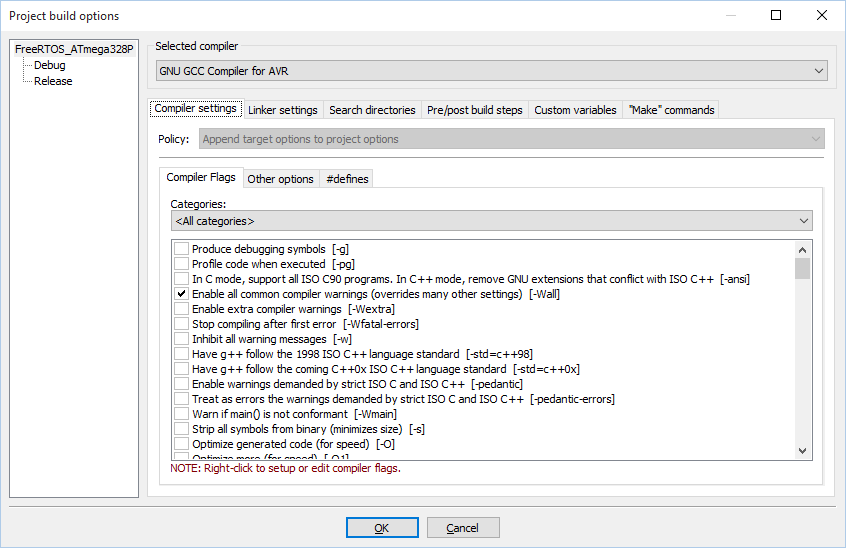
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# Executive Summary

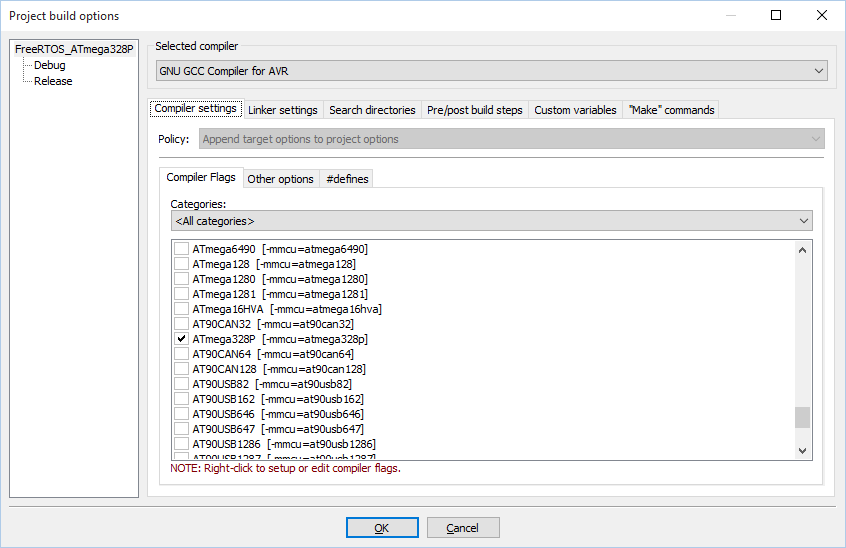
Executive summary goes here …

# CodeBlocks IDE setup

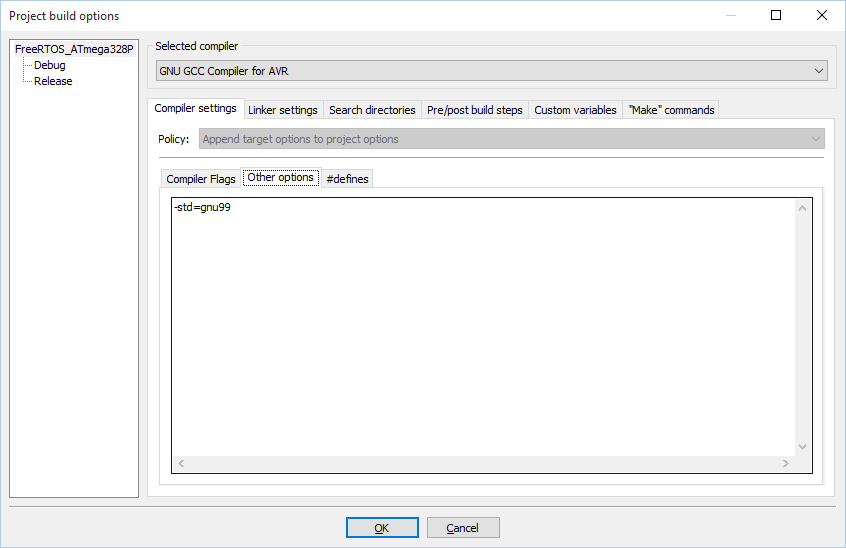
## Project Build Options



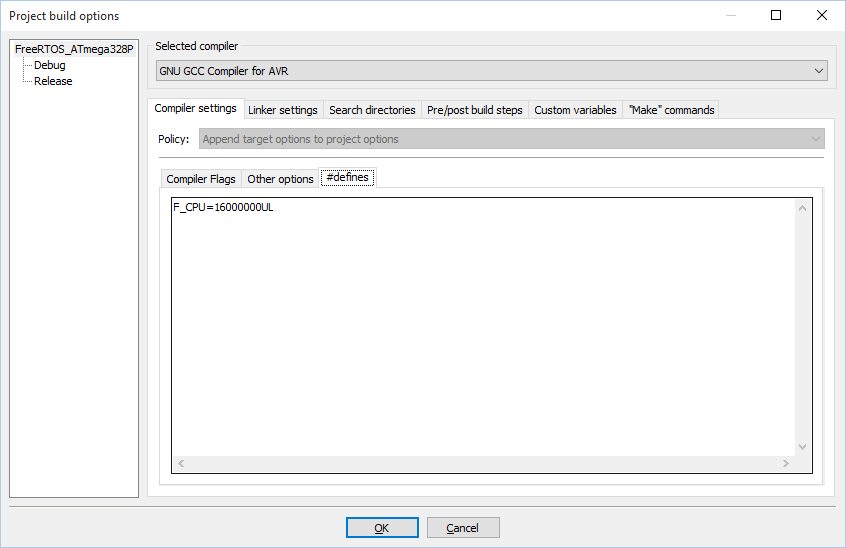
Project build options (Compiler Settings :: Compiler Flags 1)



Project build options (Compiler Settings :: Compiler Flags 2)



Project build options (Compiler Settings :: Other options)

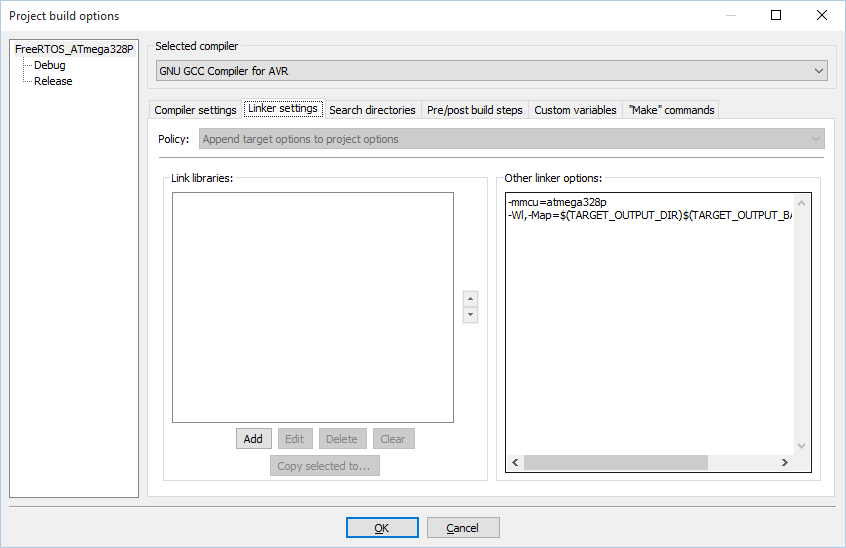


Project build options (Compiler Settings :: #defines)

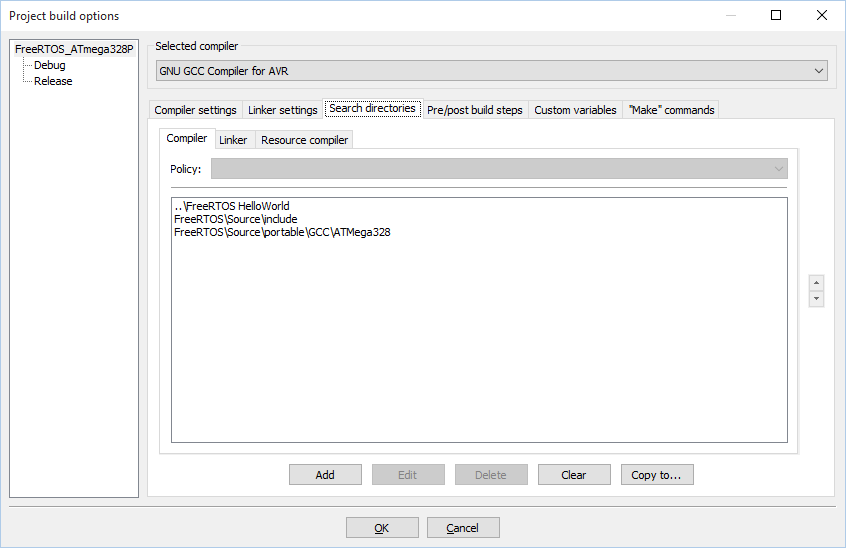
Other linker options:

-mmcu=atmega328p

-Wl,-Map=$(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).map,--cref



Project build options (Linker Settings :: Compiler Flags)



Project build options (Search directories :: Compiler)

Post-build steps:

avr-size --mcu=atmega328p --format=avr $(TARGET\_OUTPUT\_FILE)

cmd /c "avr-objdump -h -S $(TARGET\_OUTPUT\_FILE) > $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).lss"

avr-objcopy -R .eeprom -R .fuse -R .lock -R .signature -O ihex $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).hex

avr-objcopy --no-change-warnings -j .eeprom --change-section-lma .eeprom=0 -O ihex $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).eep

avr-objcopy --no-change-warnings -j .lock --change-section-lma .lock=0 -O ihex $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).lock

avr-objcopy --no-change-warnings -j .signature --change-section-lma .signature=0 -O ihex $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).sig

avr-objcopy --no-change-warnings -j .fuse --change-section-lma .fuse=0 -O ihex $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).fuse

srec\_cat $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).fuse -Intel -crop 0x00 0x01 -offset 0x00 -O $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).lfs -Intel

srec\_cat $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).fuse -Intel -crop 0x01 0x02 -offset -0x01 -O $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).hfs -Intel

srec\_cat $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).fuse -Intel -crop 0x02 0x03 -offset -0x02 -O $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).efs -Intel

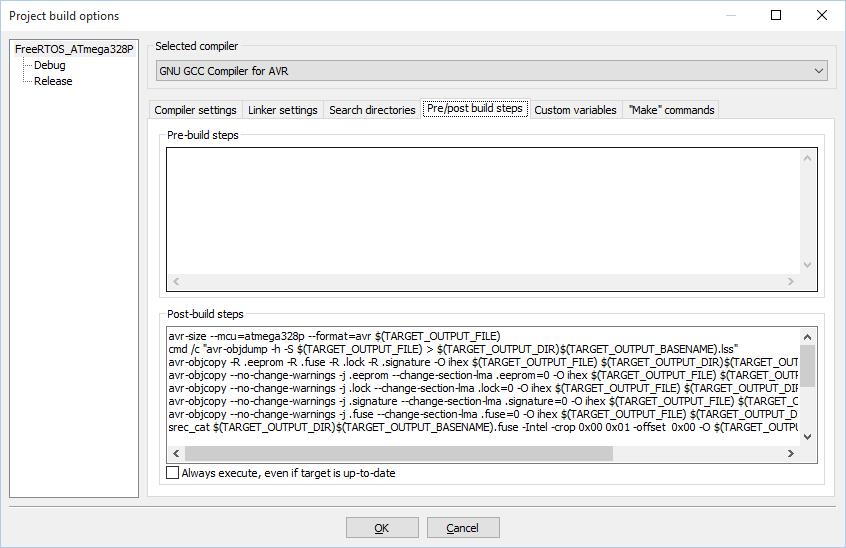
avr-objcopy -R .eeprom -R .fuse -R .lock -R .signature -O binary $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).bin

avr-objcopy --no-change-warnings -j .eeprom --change-section-lma .eeprom=0 -O binary $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).eep

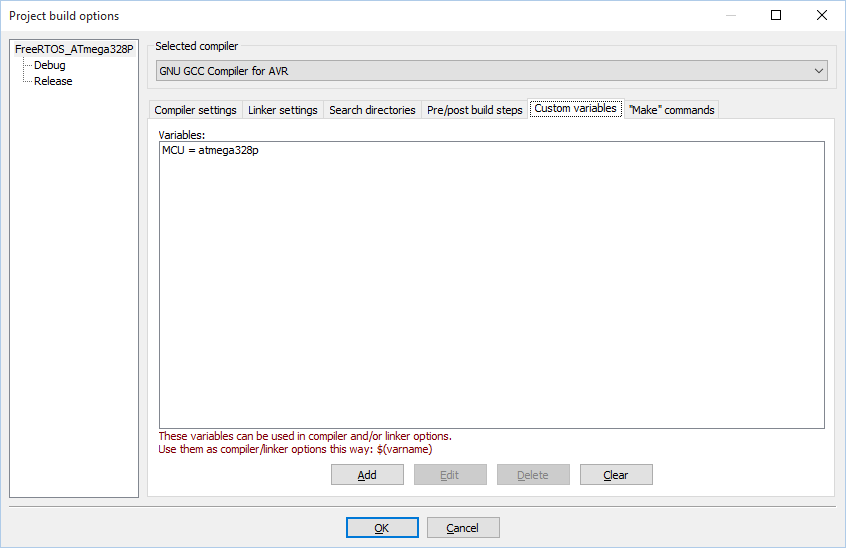
avr-objcopy --no-change-warnings -j .lock --change-section-lma .lock=0 -O binary $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).lock

avr-objcopy --no-change-warnings -j .signature --change-section-lma .signature=0 -O binary $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).sig

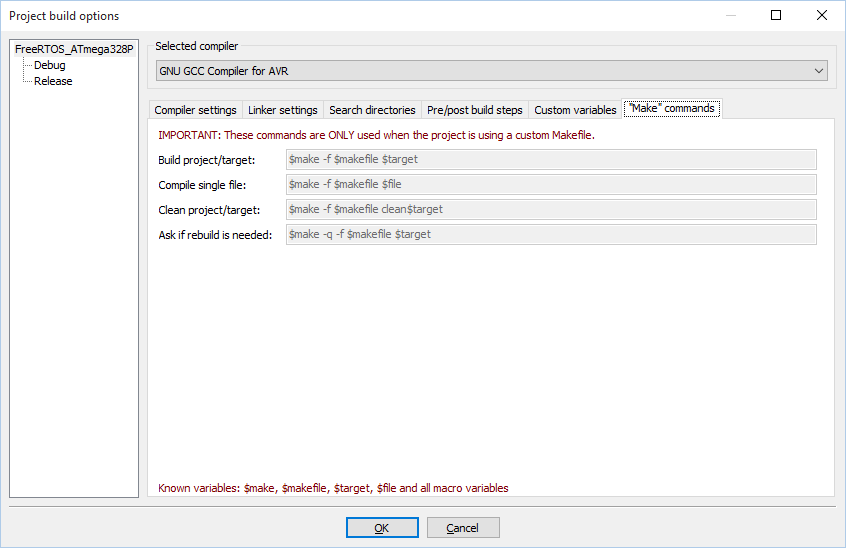
avr-objcopy --no-change-warnings -j .fuse --change-section-lma .fuse=0 -O binary $(TARGET\_OUTPUT\_FILE) $(TARGET\_OUTPUT\_DIR)$(TARGET\_OUTPUT\_BASENAME).fuse



Project build options (Pre/Port build steps)



Project build options (Custom variables)



Project build options (“Make” commands)

## Uploading the HEX files to Arduino:

### Using Avrdude as external tool from CodeBlocks

Executable:

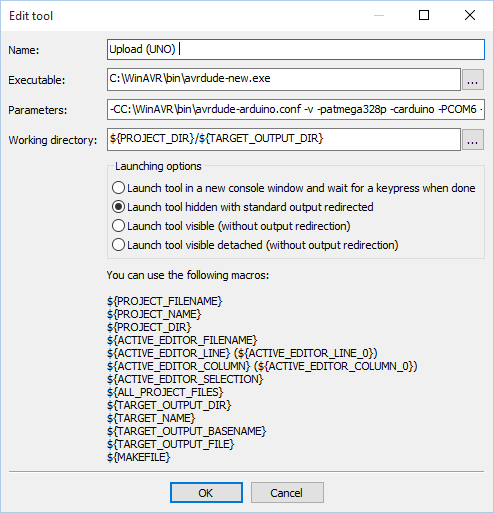
C:\WinAVR\bin\avrdude-new.exe

Parameters:

-CC:\WinAVR\bin\avrdude-arduino.conf -v -patmega328p -carduino -PCOM6 -b115200 -D -Uflash:w:${TARGET\_OUTPUT\_BASENAME}.hex:i

Working directory:

${PROJECT\_DIR}/${TARGET\_OUTPUT\_DIR}



Avrdude as external tool from CodeBlocks

avrdude version 6.0.1, URL: <http://savannah.nongnu.org/projects/avrdude/> is used

avrdude-arduino.conf file listing:

# $Id: avrdude.conf.in 1236 2013-09-16 19:40:15Z joerg\_wunsch $ -\*- text -\*-

#

# AVRDUDE Configuration File

#

# This file contains configuration data used by AVRDUDE which describes

# the programming hardware pinouts and also provides part definitions.

# AVRDUDE's "-C" command line option specifies the location of the

# configuration file. The "-c" option names the programmer configuration

# which must match one of the entry's "id" parameter. The "-p" option

# identifies which part AVRDUDE is going to be programming and must match

# one of the parts' "id" parameter.

#

# Possible entry formats are:

#

# programmer

# parent <id> # optional parent

# id = <id1> [, <id2> [, <id3>] ...] ; # <idN> are quoted strings

# desc = <description> ; # quoted string

# type = <type>; # programmer type, quoted string

# # supported programmer types can be listed by "-c ?type"

# connection\_type = parallel | serial | usb

# baudrate = <num> ; # baudrate for avr910-programmer

# vcc = <num1> [, <num2> ... ] ; # pin number(s)

# buff = <num1> [, <num2> ... ] ; # pin number(s)

# reset = <num> ; # pin number

# sck = <num> ; # pin number

# mosi = <num> ; # pin number

# miso = <num> ; # pin number

# errled = <num> ; # pin number

# rdyled = <num> ; # pin number

# pgmled = <num> ; # pin number

# vfyled = <num> ; # pin number

# usbvid = <hexnum>; # USB VID (Vendor ID)

# usbpid = <hexnum>; # USB PID (Product ID)

# usbdev = <interface>; # USB interface or other device info

# usbvendor = <vendorname>; # USB Vendor Name

# usbproduct = <productname>; # USB Product Name

# usbsn = <serialno>; # USB Serial Number

#

# To invert a bit, use = ~ <num>, the spaces are important.

# For a pin list all pins must be inverted.

# A single pin can be specified as usual = ~ <num>, for lists

# specify it as follows = ~ ( <num> [, <num2> ... ] ) .

# ;

#

# part

# id = <id> ; # quoted string

# desc = <description> ; # quoted string

# has\_jtag = <yes/no> ; # part has JTAG i/f

# has\_debugwire = <yes/no> ; # part has debugWire i/f

# has\_pdi = <yes/no> ; # part has PDI i/f

# has\_tpi = <yes/no> ; # part has TPI i/f

# devicecode = <num> ; # deprecated, use stk500\_devcode

# stk500\_devcode = <num> ; # numeric

# avr910\_devcode = <num> ; # numeric

# signature = <num> <num> <num> ; # signature bytes

# chip\_erase\_delay = <num> ; # micro-seconds

# reset = dedicated | io;

# retry\_pulse = reset | sck;

# pgm\_enable = <instruction format> ;

# chip\_erase = <instruction format> ;

# chip\_erase\_delay = <num> ; # chip erase delay (us)

# # STK500 parameters (parallel programming IO lines)

# pagel = <num> ; # pin name in hex, i.e., 0xD7

# bs2 = <num> ; # pin name in hex, i.e., 0xA0

# serial = <yes/no> ; # can use serial downloading

# parallel = <yes/no/pseudo>; # can use par. programming

# # STK500v2 parameters, to be taken from Atmel's XML files

# timeout = <num> ;

# stabdelay = <num> ;

# cmdexedelay = <num> ;

# synchloops = <num> ;

# bytedelay = <num> ;

# pollvalue = <num> ;

# pollindex = <num> ;

# predelay = <num> ;

# postdelay = <num> ;

# pollmethod = <num> ;

# mode = <num> ;

# delay = <num> ;

# blocksize = <num> ;

# readsize = <num> ;

# hvspcmdexedelay = <num> ;

# # STK500v2 HV programming parameters, from XML

# pp\_controlstack = <num>, <num>, ...; # PP only

# hvsp\_controlstack = <num>, <num>, ...; # HVSP only

# hventerstabdelay = <num>;

# progmodedelay = <num>; # PP only

# latchcycles = <num>;

# togglevtg = <num>;

# poweroffdelay = <num>;

# resetdelayms = <num>;

# resetdelayus = <num>;

# hvleavestabdelay = <num>;

# resetdelay = <num>;

# synchcycles = <num>; # HVSP only

# chiperasepulsewidth = <num>; # PP only

# chiperasepolltimeout = <num>;

# chiperasetime = <num>; # HVSP only

# programfusepulsewidth = <num>; # PP only

# programfusepolltimeout = <num>;

# programlockpulsewidth = <num>; # PP only

# programlockpolltimeout = <num>;

# # JTAG ICE mkII parameters, also from XML files

# allowfullpagebitstream = <yes/no> ;

# enablepageprogramming = <yes/no> ;

# idr = <num> ; # IO addr of IDR (OCD) reg.

# rampz = <num> ; # IO addr of RAMPZ reg.

# spmcr = <num> ; # mem addr of SPMC[S]R reg.

# eecr = <num> ; # mem addr of EECR reg.

# # (only when != 0x3c)

# is\_at90s1200 = <yes/no> ; # AT90S1200 part

# is\_avr32 = <yes/no> ; # AVR32 part

#

# memory <memtype>

# paged = <yes/no> ; # yes / no

# size = <num> ; # bytes

# page\_size = <num> ; # bytes

# num\_pages = <num> ; # numeric

# min\_write\_delay = <num> ; # micro-seconds

# max\_write\_delay = <num> ; # micro-seconds

# readback\_p1 = <num> ; # byte value

# readback\_p2 = <num> ; # byte value

# pwroff\_after\_write = <yes/no> ; # yes / no

# read = <instruction format> ;

# write = <instruction format> ;

# read\_lo = <instruction format> ;

# read\_hi = <instruction format> ;

# write\_lo = <instruction format> ;

# write\_hi = <instruction format> ;

# loadpage\_lo = <instruction format> ;

# loadpage\_hi = <instruction format> ;

# writepage = <instruction format> ;

# ;

# ;

#

# If any of the above parameters are not specified, the default value

# of 0 is used for numerics or the empty string ("") for string

# values. If a required parameter is left empty, AVRDUDE will

# complain.

#

# Parts can also inherit parameters from previously defined parts

# using the following syntax. In this case specified integer and

# string values override parameter values from the parent part. New

# memory definitions are added to the definitions inherited from the

# parent.

#

# part parent <id> # quoted string

# id = <id> ; # quoted string

# <any set of other parameters from the list above>

# ;

#

# NOTES:

# \* 'devicecode' is the device code used by the STK500 (see codes

# listed below)

# \* Not all memory types will implement all instructions.

# \* AVR Fuse bits and Lock bits are implemented as a type of memory.

# \* Example memory types are:

# "flash", "eeprom", "fuse", "lfuse" (low fuse), "hfuse" (high

# fuse), "signature", "calibration", "lock"

# \* The memory type specified on the avrdude command line must match

# one of the memory types defined for the specified chip.

# \* The pwroff\_after\_write flag causes avrdude to attempt to

# power the device off and back on after an unsuccessful write to

# the affected memory area if VCC programmer pins are defined. If

# VCC pins are not defined for the programmer, a message

# indicating that the device needs a power-cycle is printed out.

# This flag was added to work around a problem with the

# at90s4433/2333's; see the at90s4433 errata at:

#

# http://www.atmel.com/dyn/resources/prod\_documents/doc1280.pdf

#

# INSTRUCTION FORMATS

#

# Instruction formats are specified as a comma seperated list of

# string values containing information (bit specifiers) about each

# of the 32 bits of the instruction. Bit specifiers may be one of

# the following formats:

#

# '1' = the bit is always set on input as well as output

#

# '0' = the bit is always clear on input as well as output

#

# 'x' = the bit is ignored on input and output

#

# 'a' = the bit is an address bit, the bit-number matches this bit

# specifier's position within the current instruction byte

#

# 'aN' = the bit is the Nth address bit, bit-number = N, i.e., a12

# is address bit 12 on input, a0 is address bit 0.

#

# 'i' = the bit is an input data bit

#

# 'o' = the bit is an output data bit

#

# Each instruction must be composed of 32 bit specifiers. The

# instruction specification closely follows the instruction data

# provided in Atmel's data sheets for their parts.

#

# See below for some examples.

#

#

# The following are STK500 part device codes to use for the

# "devicecode" field of the part. These came from Atmel's software

# section avr061.zip which accompanies the application note

# AVR061 available from:

#

# http://www.atmel.com/dyn/resources/prod\_documents/doc2525.pdf

#

#define ATTINY10 0x10 /\* the \_old\_ one that never existed! \*/

#define ATTINY11 0x11

#define ATTINY12 0x12

#define ATTINY15 0x13

#define ATTINY13 0x14

#define ATTINY22 0x20

#define ATTINY26 0x21

#define ATTINY28 0x22

#define ATTINY2313 0x23

#define AT90S1200 0x33

#define AT90S2313 0x40

#define AT90S2323 0x41

#define AT90S2333 0x42

#define AT90S2343 0x43

#define AT90S4414 0x50

#define AT90S4433 0x51

#define AT90S4434 0x52

#define ATMEGA48 0x59

#define AT90S8515 0x60

#define AT90S8535 0x61

#define AT90C8534 0x62

#define ATMEGA8515 0x63

#define ATMEGA8535 0x64

#define ATMEGA8 0x70

#define ATMEGA88 0x73

#define ATMEGA168 0x86

#define ATMEGA161 0x80

#define ATMEGA163 0x81

#define ATMEGA16 0x82

#define ATMEGA162 0x83

#define ATMEGA169 0x84

#define ATMEGA323 0x90

#define ATMEGA32 0x91

#define ATMEGA64 0xA0

#define ATMEGA103 0xB1

#define ATMEGA128 0xB2

#define AT90CAN128 0xB3

#define AT90CAN64 0xB3

#define AT90CAN32 0xB3

#define AT86RF401 0xD0

#define AT89START 0xE0

#define AT89S51 0xE0

#define AT89S52 0xE1

# The following table lists the devices in the original AVR910

# appnote:

# |Device |Signature | Code |

# +-------+----------+------+

# |tiny12 | 1E 90 05 | 0x55 |

# |tiny15 | 1E 90 06 | 0x56 |

# | | | |

# | S1200 | 1E 90 01 | 0x13 |

# | | | |

# | S2313 | 1E 91 01 | 0x20 |

# | S2323 | 1E 91 02 | 0x48 |

# | S2333 | 1E 91 05 | 0x34 |

# | S2343 | 1E 91 03 | 0x4C |

# | | | |

# | S4414 | 1E 92 01 | 0x28 |

# | S4433 | 1E 92 03 | 0x30 |

# | S4434 | 1E 92 02 | 0x6C |

# | | | |

# | S8515 | 1E 93 01 | 0x38 |

# | S8535 | 1E 93 03 | 0x68 |

# | | | |

# |mega32 | 1E 95 01 | 0x72 |

# |mega83 | 1E 93 05 | 0x65 |

# |mega103| 1E 97 01 | 0x41 |

# |mega161| 1E 94 01 | 0x60 |

# |mega163| 1E 94 02 | 0x64 |

# Appnote AVR109 also has a table of AVR910 device codes, which

# lists:

# dev avr910 signature

# ATmega8 0x77 0x1E 0x93 0x07

# ATmega8515 0x3B 0x1E 0x93 0x06

# ATmega8535 0x6A 0x1E 0x93 0x08

# ATmega16 0x75 0x1E 0x94 0x03

# ATmega162 0x63 0x1E 0x94 0x04

# ATmega163 0x66 0x1E 0x94 0x02

# ATmega169 0x79 0x1E 0x94 0x05

# ATmega32 0x7F 0x1E 0x95 0x02

# ATmega323 0x73 0x1E 0x95 0x01

# ATmega64 0x46 0x1E 0x96 0x02

# ATmega128 0x44 0x1E 0x97 0x02

#

# These codes refer to "BOOT" device codes which are apparently

# different than standard device codes, for whatever reasons

# (often one above the standard code).

# There are several extended versions of AVR910 implementations around

# in the Internet. These add the following codes (only devices that

# actually exist are listed):

# ATmega8515 0x3A

# ATmega128 0x43

# ATmega64 0x45

# ATtiny26 0x5E

# ATmega8535 0x69

# ATmega32 0x72

# ATmega16 0x74

# ATmega8 0x76

# ATmega169 0x78

#

# Overall avrdude defaults; suitable for ~/.avrduderc

#

default\_parallel = "lpt1";

default\_serial = "com1";

# default\_bitclock = 2.5;

# Turn off safemode by default

#default\_safemode = no;

#

# PROGRAMMER DEFINITIONS

#

# http://wiring.org.co/

# Basically STK500v2 protocol, with some glue to trigger the

# bootloader.

programmer

id = "wiring";

desc = "Wiring";

type = "wiring";

connection\_type = serial;

;

programmer

id = "arduino";

desc = "Arduino";

type = "arduino";

connection\_type = serial;

;

# this will interface with the chips on these programmers:

#

# http://real.kiev.ua/old/avreal/en/adapters

# http://www.amontec.com/jtagkey.shtml, jtagkey-tiny.shtml

# http://www.olimex.com/dev/arm-usb-ocd.html, arm-usb-tiny.html

# http://www.ethernut.de/en/hardware/turtelizer/index.html

# http://elk.informatik.fh-augsburg.de/hhweb/doc/openocd/usbjtag/usbjtag.html

# http://dangerousprototypes.com/docs/FT2232\_breakout\_board

# http://www.ftdichip.com/Products/Modules/DLPModules.htm,DLP-2232\*,DLP-USB1232H

# http://flashrom.org/FT2232SPI\_Programmer

#

# The drivers will look for a specific device and use the first one found.

# If you have mulitple devices, then look for unique information (like SN)

# And fill that in here.

#

# Note that the pin numbers for the main ISP signals (reset, sck,

# mosi, miso) are fixed and cannot be changed, since they must match

# the way the Multi-Protocol Synchronous Serial Engine (MPSSE) of

# these FTDI ICs has been designed.

programmer

id = "avrftdi";

desc = "FT2232D based generic programmer";

type = "avrftdi";

connection\_type = usb;

usbvid = 0x0403;

usbpid = 0x6010;

usbvendor = "";

usbproduct = "";

usbdev = "A";

usbsn = "";

#ISP-signals - lower ADBUS-Nibble (default)

reset = 3;

sck = 0;

mosi = 1;

miso = 2;

#LED SIGNALs - higher ADBUS-Nibble

# errled = 4;

# rdyled = 5;

# pgmled = 6;

# vfyled = 7;

#Buffer Signal - ACBUS - Nibble

# buff = 8;

;

# This is an implementation of the above with a buffer IC (74AC244) and

# 4 LEDs directly attached, all active low.

programmer

id = "2232HIO";

desc = "FT2232H based generic programmer";

type = "avrftdi";

connection\_type = usb;

usbvid = 0x0403;

# Note: This PID is reserved for generic H devices and

# should be programmed into the EEPROM

# usbpid = 0x8A48;

usbpid = 0x6010;

usbdev = "A";

usbvendor = "";

usbproduct = "";

usbsn = "";

#ISP-signals

reset = 3;

sck = 0;

mosi = 1;

miso = 2;

buff = ~4;

#LED SIGNALs

errled = ~ 11;

rdyled = ~ 14;

pgmled = ~ 13;

vfyled = ~ 12;

;

#The FT4232H can be treated as FT2232H, but it has a different USB

#device ID of 0x6011.

programmer parent "avrftdi"

id = "4232h";

desc = "FT4232H based generic programmer";

usbpid = 0x6011;

;

programmer

id = "jtagkey";

desc = "Amontec JTAGKey, JTAGKey-Tiny and JTAGKey2";

type = "avrftdi";

connection\_type = usb;

usbvid = 0x0403;

# Note: This PID is used in all JTAGKey variants

usbpid = 0xCFF8;

usbdev = "A";

usbvendor = "";

usbproduct = "";

usbsn = "";

#ISP-signals => 20 - Pin connector on JTAGKey

reset = 3; # TMS 7 violet

sck = 0; # TCK 9 white

mosi = 1; # TDI 5 green

miso = 2; # TDO 13 orange

buff = ~4;

# VTG VREF 1 brown with red tip

# GND GND 20 black

# The colors are on the 20 pin breakout cable

# from Amontec

;

# On the adapter you can read "O-Link". On the PCB is printed "OpenJTAG v3.1"

# You can find it as "OpenJTAG ARM JTAG USB" in the internet.

# (But there are also several projects called Open JTAG, eg.

# http://www.openjtag.org, which are completely different.)

# http://www.100ask.net/shop/english.html (website seems to be outdated)

# http://item.taobao.com/item.htm?id=1559277013

# http://www.micro4you.com/store/openjtag-arm-jtag-usb.html (schematics!)

# some other sources which call it O-Link

# http://www.andahammer.com/olink/

# http://www.developmentboard.net/31-o-link-debugger.html

# http://armwerks.com/catalog/o-link-debugger-copy/

# or just have a look at ebay ...

# It is basically the same entry as jtagkey with different usb ids.

programmer parent "jtagkey"

id = "o-link";

desc = "O-Link, OpenJTAG from www.100ask.net";

usbvid = 0x1457;

usbpid = 0x5118;

usbvendor = "www.100ask.net";

usbproduct = "USB<=>JTAG&RS232";

;

# http://wiki.openmoko.org/wiki/Debug\_Board\_v3

programmer

id = "openmoko";

desc = "Openmoko debug board (v3)";

type = "avrftdi";

usbvid = 0x1457;

usbpid = 0x5118;

usbdev = "A";

usbvendor = "";

usbproduct = "";

usbsn = "";

reset = 3; # TMS 7

sck = 0; # TCK 9

mosi = 1; # TDI 5

miso = 2; # TDO 13

;

# Only Rev. A boards.

# Schematic and user manual: http://www.cs.put.poznan.pl/wswitala/download/pdf/811EVBK.pdf

programmer

id = "lm3s811";

desc = "Luminary Micro LM3S811 Eval Board (Rev. A)";

type = "avrftdi";

connection\_type = usb;

usbvid = 0x0403;

usbpid = 0xbcd9;

usbvendor = "LMI";

usbproduct = "LM3S811 Evaluation Board";

usbdev = "A";

usbsn = "";

#ISP-signals - lower ACBUS-Nibble (default)

reset = 3;

sck = 0;

mosi = 1;

miso = 2;

# Enable correct buffers

buff = 7;

;

programmer

id = "avrisp";

desc = "Atmel AVR ISP";

type = "stk500";

connection\_type = serial;

;

programmer

id = "avrispv2";

desc = "Atmel AVR ISP V2";

type = "stk500v2";

connection\_type = serial;

;

programmer

id = "avrispmkII";

desc = "Atmel AVR ISP mkII";

type = "stk500v2";

connection\_type = usb;

;

programmer parent "avrispmkII"

id = "avrisp2";

;

programmer

id = "buspirate";

desc = "The Bus Pirate";

type = "buspirate";

connection\_type = serial;

;

programmer

id = "buspirate\_bb";

desc = "The Bus Pirate (bitbang interface, supports TPI)";

type = "buspirate\_bb";

connection\_type = serial;

# pins are bits in bitbang byte (numbers are 87654321)

# 1|POWER|PULLUP|AUX|MOSI|CLK|MISO|CS

reset = 1;

sck = 3;

mosi = 4;

miso = 2;

#vcc = 7; This is internally set independent of this setting.

;

# This is supposed to be the "default" STK500 entry.

# Attempts to select the correct firmware version

# by probing for it. Better use one of the entries

# below instead.

programmer

id = "stk500";

desc = "Atmel STK500";

type = "stk500generic";

connection\_type = serial;

;

programmer

id = "stk500v1";

desc = "Atmel STK500 Version 1.x firmware";

type = "stk500";

connection\_type = serial;

;

programmer

id = "mib510";

desc = "Crossbow MIB510 programming board";

type = "stk500";

connection\_type = serial;

;

programmer

id = "stk500v2";

desc = "Atmel STK500 Version 2.x firmware";

type = "stk500v2";

connection\_type = serial;

;

programmer

id = "stk500pp";

desc = "Atmel STK500 V2 in parallel programming mode";

type = "stk500pp";

connection\_type = serial;

;

programmer

id = "stk500hvsp";

desc = "Atmel STK500 V2 in high-voltage serial programming mode";

type = "stk500hvsp";

connection\_type = serial;

;

programmer

id = "stk600";

desc = "Atmel STK600";

type = "stk600";

connection\_type = usb;

;

programmer

id = "stk600pp";

desc = "Atmel STK600 in parallel programming mode";

type = "stk600pp";

connection\_type = usb;

;

programmer

id = "stk600hvsp";

desc = "Atmel STK600 in high-voltage serial programming mode";

type = "stk600hvsp";

connection\_type = usb;

;

programmer

id = "avr910";

desc = "Atmel Low Cost Serial Programmer";

type = "avr910";

connection\_type = serial;

;

programmer

id = "ft245r";

desc = "FT245R Synchronous BitBang";

type = "ftdi\_syncbb";

connection\_type = usb;

miso = 1; # D1

sck = 0; # D0

mosi = 2; # D2

reset = 4; # D4

;

programmer

id = "ft232r";

desc = "FT232R Synchronous BitBang";

type = "ftdi\_syncbb";

connection\_type = usb;

miso = 1; # RxD

sck = 0; # RTS

mosi = 2; # TxD

reset = 4; # DTR

;

# see http://www.bitwizard.nl/wiki/index.php/FTDI\_ATmega

programmer

id = "bwmega";

desc = "BitWizard ftdi\_atmega builtin programmer";

type = "ftdi\_syncbb";

connection\_type = usb;

miso = 5; # DSR

sck = 6; # DCD

mosi = 3; # CTS

reset = 7; # RI

;

# see http://www.geocities.jp/arduino\_diecimila/bootloader/index\_en.html

# Note: pins are numbered from 1!

programmer

id = "arduino-ft232r";

desc = "Arduino: FT232R connected to ISP";

type = "ftdi\_syncbb";

connection\_type = usb;

miso = 3; # CTS X3(1)

sck = 5; # DSR X3(2)

mosi = 6; # DCD X3(3)

reset = 7; # RI X3(4)

;

# website mentioned above uses this id

programmer parent "arduino-ft232r"

id = "diecimila";

desc = "alias for arduino-ft232r";

;

programmer

id = "usbasp";

desc = "USBasp, http://www.fischl.de/usbasp/";

type = "usbasp";

connection\_type = usb;

usbvid = 0x16C0; # VOTI

usbpid = 0x05DC; # Obdev's free shared PID

usbvendor = "www.fischl.de";

usbproduct = "USBasp";

# following variants are autodetected for id "usbasp"

# original usbasp from fischl.de

# see above "usbasp"

# old usbasp from fischl.de

#usbvid = 0x03EB; # ATMEL

#usbpid = 0xC7B4; # (unoffical) USBasp

#usbvendor = "www.fischl.de";

#usbproduct = "USBasp";

# NIBObee (only if -P nibobee is given on command line)

# see below "nibobee"

;

programmer

id = "nibobee";

desc = "NIBObee";

type = "usbasp";

connection\_type = usb;

usbvid = 0x16C0; # VOTI

usbpid = 0x092F; # NIBObee PID

usbvendor = "www.nicai-systems.com";

usbproduct = "NIBObee";

;

programmer

id = "usbasp-clone";

desc = "Any usbasp clone with correct VID/PID";

type = "usbasp";

connection\_type = usb;

usbvid = 0x16C0; # VOTI

usbpid = 0x05DC; # Obdev's free shared PID

#usbvendor = "";

#usbproduct = "";

;

programmer

id = "usbtiny";

desc = "USBtiny simple USB programmer, http://www.ladyada.net/make/usbtinyisp/";

type = "usbtiny";

connection\_type = usb;

usbvid = 0x1781;

usbpid = 0x0c9f;

;

programmer

id = "arduinoisp";

desc = " ";

type = "usbtiny";

connection\_type = usb;

usbvid = 0x2341;

usbpid = 0x0049;

;

programmer

id = "butterfly";

desc = "Atmel Butterfly Development Board";

type = "butterfly";

connection\_type = serial;

;

programmer

id = "avr109";

desc = "Atmel AppNote AVR109 Boot Loader";

type = "butterfly";

connection\_type = serial;

;

programmer

id = "avr911";

desc = "Atmel AppNote AVR911 AVROSP";

type = "butterfly";

connection\_type = serial;

;

# suggested in http://forum.mikrokopter.de/topic-post48317.html

programmer

id = "mkbutterfly";

desc = "Mikrokopter.de Butterfly";

type = "butterfly\_mk";

connection\_type = serial;

;

programmer parent "mkbutterfly"

id = "butterfly\_mk";

;

programmer

id = "jtagmkI";

desc = "Atmel JTAG ICE (mkI)";

baudrate = 115200; # default is 115200

type = "jtagmki";

connection\_type = serial;

;

# easier to type

programmer parent "jtagmkI"

id = "jtag1";

;

# easier to type

programmer parent "jtag1"

id = "jtag1slow";

baudrate = 19200;

;

# The JTAG ICE mkII has both, serial and USB connectivity. As it is

# mostly used through USB these days (AVR Studio 5 only supporting it

# that way), we make connection\_type = usb the default. Users are

# still free to use a serial port with the -P option.

programmer

id = "jtagmkII";

desc = "Atmel JTAG ICE mkII";

baudrate = 19200; # default is 19200

type = "jtagmkii";

connection\_type = usb;

;

# easier to type

programmer parent "jtagmkII"

id = "jtag2slow";

;

# JTAG ICE mkII @ 115200 Bd

programmer parent "jtag2slow"

id = "jtag2fast";

baudrate = 115200;

;

# make the fast one the default, people will love that

programmer parent "jtag2fast"

id = "jtag2";

;

# JTAG ICE mkII in ISP mode

programmer

id = "jtag2isp";

desc = "Atmel JTAG ICE mkII in ISP mode";

baudrate = 115200;

type = "jtagmkii\_isp";

connection\_type = usb;

;

# JTAG ICE mkII in debugWire mode

programmer

id = "jtag2dw";

desc = "Atmel JTAG ICE mkII in debugWire mode";

baudrate = 115200;

type = "jtagmkii\_dw";

connection\_type = usb;

;

# JTAG ICE mkII in AVR32 mode

programmer

id = "jtagmkII\_avr32";

desc = "Atmel JTAG ICE mkII im AVR32 mode";

baudrate = 115200;

type = "jtagmkii\_avr32";

connection\_type = usb;

;

# JTAG ICE mkII in AVR32 mode

programmer

id = "jtag2avr32";

desc = "Atmel JTAG ICE mkII im AVR32 mode";

baudrate = 115200;

type = "jtagmkii\_avr32";

connection\_type = usb;

;

# JTAG ICE mkII in PDI mode

programmer

id = "jtag2pdi";

desc = "Atmel JTAG ICE mkII PDI mode";

baudrate = 115200;

type = "jtagmkii\_pdi";

connection\_type = usb;

;

# AVR Dragon in JTAG mode

programmer

id = "dragon\_jtag";

desc = "Atmel AVR Dragon in JTAG mode";

baudrate = 115200;

type = "dragon\_jtag";

connection\_type = usb;

;

# AVR Dragon in ISP mode

programmer

id = "dragon\_isp";

desc = "Atmel AVR Dragon in ISP mode";

baudrate = 115200;

type = "dragon\_isp";

connection\_type = usb;

;

# AVR Dragon in PP mode

programmer

id = "dragon\_pp";

desc = "Atmel AVR Dragon in PP mode";

baudrate = 115200;

type = "dragon\_pp";

connection\_type = usb;

;

# AVR Dragon in HVSP mode

programmer

id = "dragon\_hvsp";

desc = "Atmel AVR Dragon in HVSP mode";

baudrate = 115200;

type = "dragon\_hvsp";

connection\_type = usb;

;

# AVR Dragon in debugWire mode

programmer

id = "dragon\_dw";

desc = "Atmel AVR Dragon in debugWire mode";

baudrate = 115200;

type = "dragon\_dw";

connection\_type = usb;

;

# AVR Dragon in PDI mode

programmer

id = "dragon\_pdi";

desc = "Atmel AVR Dragon in PDI mode";

baudrate = 115200;

type = "dragon\_pdi";

connection\_type = usb;

;

programmer

id = "jtag3";

desc = "Atmel AVR JTAGICE3 in JTAG mode";

type = "jtagice3";

connection\_type = usb;

;

programmer

id = "jtag3pdi";

desc = "Atmel AVR JTAGICE3 in PDI mode";

type = "jtagice3\_pdi";

connection\_type = usb;

;

programmer

id = "jtag3dw";

desc = "Atmel AVR JTAGICE3 in debugWIRE mode";

type = "jtagice3\_dw";

connection\_type = usb;

;

programmer

id = "jtag3isp";

desc = "Atmel AVR JTAGICE3 in ISP mode";

type = "jtagice3\_isp";

connection\_type = usb;

;

programmer

id = "pavr";

desc = "Jason Kyle's pAVR Serial Programmer";

type = "avr910";

connection\_type = serial;

;

programmer

id = "pickit2";

desc = "MicroChip's PICkit2 Programmer";

type = "pickit2";

connection\_type = usb;

;

# Parallel port programmers.

programmer

id = "bsd";

desc = "Brian Dean's Programmer, http://www.bsdhome.com/avrdude/";

type = "par";

connection\_type = parallel;

vcc = 2, 3, 4, 5;

reset = 7;

sck = 8;

mosi = 9;

miso = 10;

;

programmer

id = "stk200";

desc = "STK200";

type = "par";

connection\_type = parallel;

buff = 4, 5;

sck = 6;

mosi = 7;

reset = 9;

miso = 10;

;

# The programming dongle used by the popular Ponyprog

# utility. It is almost similar to the STK200 one,

# except that there is a LED indicating that the

# programming is currently in progress.

programmer parent "stk200"

id = "pony-stk200";

desc = "Pony Prog STK200";

pgmled = 8;

;

programmer

id = "dt006";

desc = "Dontronics DT006";

type = "par";

connection\_type = parallel;

reset = 4;

sck = 5;

mosi = 2;

miso = 11;

;

programmer parent "dt006"

id = "bascom";

desc = "Bascom SAMPLE programming cable";

;

programmer

id = "alf";

desc = "Nightshade ALF-PgmAVR, http://nightshade.homeip.net/";

type = "par";

connection\_type = parallel;

vcc = 2, 3, 4, 5;

buff = 6;

reset = 7;

sck = 8;

mosi = 9;

miso = 10;

errled = 1;

rdyled = 14;

pgmled = 16;

vfyled = 17;

;

programmer

id = "sp12";

desc = "Steve Bolt's Programmer";

type = "par";

connection\_type = parallel;

vcc = 4,5,6,7,8;

reset = 3;

sck = 2;

mosi = 9;

miso = 11;

;

programmer

id = "picoweb";

desc = "Picoweb Programming Cable, http://www.picoweb.net/";

type = "par";

connection\_type = parallel;

reset = 2;

sck = 3;

mosi = 4;

miso = 13;

;

programmer

id = "abcmini";

desc = "ABCmini Board, aka Dick Smith HOTCHIP";

type = "par";

connection\_type = parallel;

reset = 4;

sck = 3;

mosi = 2;

miso = 10;

;

programmer

id = "futurlec";

desc = "Futurlec.com programming cable.";

type = "par";

connection\_type = parallel;

reset = 3;

sck = 2;

mosi = 1;

miso = 10;

;

# From the contributor of the "xil" jtag cable:

# The "vcc" definition isn't really vcc (the cable gets its power from

# the programming circuit) but is necessary to switch one of the

# buffer lines (trying to add it to the "buff" lines doesn't work in

# avrdude versions before 5.5j).

# With this, TMS connects to RESET, TDI to MOSI, TDO to MISO and TCK

# to SCK (plus vcc/gnd of course)

programmer

id = "xil";

desc = "Xilinx JTAG cable";

type = "par";

connection\_type = parallel;

mosi = 2;

sck = 3;

reset = 4;

buff = 5;

miso = 13;

vcc = 6;

;

programmer

id = "dapa";

desc = "Direct AVR Parallel Access cable";

type = "par";

connection\_type = parallel;

vcc = 3;

reset = 16;

sck = 1;

mosi = 2;

miso = 11;

;

programmer

id = "atisp";

desc = "AT-ISP V1.1 programming cable for AVR-SDK1 from <http://micro-research.co.th/> micro-research.co.th";

type = "par";

connection\_type = parallel;

reset = ~6;

sck = ~8;

mosi = ~7;

miso = ~10;

;

programmer

id = "ere-isp-avr";

desc = "ERE ISP-AVR <http://www.ere.co.th/download/sch050713.pdf>";

type = "par";

connection\_type = parallel;

reset = ~4;

sck = 3;

mosi = 2;

miso = 10;

;

programmer

id = "blaster";

desc = "Altera ByteBlaster";

type = "par";

connection\_type = parallel;

sck = 2;

miso = 11;

reset = 3;

mosi = 8;

buff = 14;

;

# It is almost same as pony-stk200, except vcc on pin 5 to auto

# disconnect port (download on http://electropol.free.fr/spip/spip.php?article27)

programmer parent "pony-stk200"

id = "frank-stk200";

desc = "Frank STK200";

buff = ; # delete buff pin assignment

vcc = 5;

;

# The AT98ISP Cable is a simple parallel dongle for AT89 family.

# http://www.atmel.com/dyn/products/tools\_card.asp?tool\_id=2877

programmer

id = "89isp";

desc = "Atmel at89isp cable";

type = "par";

connection\_type = parallel;

reset = 17;

sck = 1;

mosi = 2;

miso = 10;

;

#This programmer bitbangs GPIO lines using the Linux sysfs GPIO interface

#

#To enable it set the configuration below to match the GPIO lines connected to the

#relevant ISP header pins and uncomment the entry definition. In case you don't

#have the required permissions to edit this system wide config file put the

#entry in a separate <your name>.conf file and use it with -C+<your name>.conf

#on the command line.

#

#To check if your avrdude build has support for the linuxgpio programmer compiled in,

#use -c?type on the command line and look for linuxgpio in the list. If it's not available

#you need pass the --enable-linuxgpio=yes option to configure and recompile avrdude.

#

#programmer

# id = "linuxgpio";

# desc = "Use the Linux sysfs interface to bitbang GPIO lines";

# type = "linuxgpio";

# reset = ?;

# sck = ?;

# mosi = ?;

# miso = ?;

#;

# some ultra cheap programmers use bitbanging on the

# serialport.

#

# PC - DB9 - Pins for RS232:

#

# GND 5 -- |O

# | O| <- 9 RI

# DTR 4 <- |O |

# | O| <- 8 CTS

# TXD 3 <- |O |

# | O| -> 7 RTS

# RXD 2 -> |O |

# | O| <- 6 DSR

# DCD 1 -> |O

#

# Using RXD is currently not supported.

# Using RI is not supported under Win32 but is supported under Posix.

# serial ponyprog design (dasa2 in uisp)

# reset=!txd sck=rts mosi=dtr miso=cts

programmer

id = "ponyser";

desc = "design ponyprog serial, reset=!txd sck=rts mosi=dtr miso=cts";

type = "serbb";

connection\_type = serial;

reset = ~3;

sck = 7;

mosi = 4;

miso = 8;

;

# Same as above, different name

# reset=!txd sck=rts mosi=dtr miso=cts

programmer parent "ponyser"

id = "siprog";

desc = "Lancos SI-Prog <http://www.lancos.com/siprogsch.html>";

;

# unknown (dasa in uisp)

# reset=rts sck=dtr mosi=txd miso=cts

programmer

id = "dasa";

desc = "serial port banging, reset=rts sck=dtr mosi=txd miso=cts";

type = "serbb";

connection\_type = serial;

reset = 7;

sck = 4;

mosi = 3;

miso = 8;

;

# unknown (dasa3 in uisp)

# reset=!dtr sck=rts mosi=txd miso=cts

programmer

id = "dasa3";

desc = "serial port banging, reset=!dtr sck=rts mosi=txd miso=cts";

type = "serbb";

connection\_type = serial;

reset = ~4;

sck = 7;

mosi = 3;

miso = 8;

;

# C2N232i (jumper configuration "auto")

# reset=dtr sck=!rts mosi=!txd miso=!cts

programmer

id = "c2n232i";

desc = "serial port banging, reset=dtr sck=!rts mosi=!txd miso=!cts";

type = "serbb";

connection\_type = serial;

reset = 4;

sck = ~7;

mosi = ~3;

miso = ~8;

;

#

# PART DEFINITIONS

#

#------------------------------------------------------------

# ATtiny11

#------------------------------------------------------------

# This is an HVSP-only device.

part

id = "t11";

desc = "ATtiny11";

stk500\_devcode = 0x11;

signature = 0x1e 0x90 0x04;

chip\_erase\_delay = 20000;

timeout = 200;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x00,

0x68, 0x78, 0x68, 0x68, 0x00, 0x00, 0x68, 0x78,

0x78, 0x00, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 50;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

memory "eeprom"

size = 64;

blocksize = 64;

readsize = 256;

delay = 5;

;

memory "flash"

size = 1024;

blocksize = 128;

readsize = 256;

delay = 3;

;

memory "signature"

size = 3;

;

memory "lock"

size = 1;

;

memory "calibration"

size = 1;

;

memory "fuse"

size = 1;

;

;

#------------------------------------------------------------

# ATtiny12

#------------------------------------------------------------

part

id = "t12";

desc = "ATtiny12";

stk500\_devcode = 0x12;

avr910\_devcode = 0x55;

signature = 0x1e 0x90 0x05;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x00,

0x68, 0x78, 0x68, 0x68, 0x00, 0x00, 0x68, 0x78,

0x78, 0x00, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 50;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

memory "eeprom"

size = 64;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 8;

blocksize = 64;

readsize = 256;

;

memory "flash"

size = 1024;

min\_write\_delay = 4500;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 5;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "fuse"

size = 1;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 x x x x x",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# ATtiny13

#------------------------------------------------------------

part

id = "t13";

desc = "ATtiny13";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x0E, 0x1E;

eeprom\_instr = 0xBB, 0xFE, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x0E, 0xB4, 0x0E, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

stk500\_devcode = 0x14;

signature = 0x1e 0x90 0x07;

chip\_erase\_delay = 4000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 90;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 0;

memory "eeprom"

size = 64;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"x x a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"x x a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 5;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 1024;

page\_size = 32;

num\_pages = 32;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 0 0 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 0 0 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 0 0 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny15

#------------------------------------------------------------

part

id = "t15";

desc = "ATtiny15";

stk500\_devcode = 0x13;

avr910\_devcode = 0x56;

signature = 0x1e 0x90 0x06;

chip\_erase\_delay = 8200;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x00,

0x68, 0x78, 0x68, 0x68, 0x00, 0x00, 0x68, 0x78,

0x78, 0x00, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

hvspcmdexedelay = 5;

synchcycles = 6;

latchcycles = 16;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 50;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

memory "eeprom"

size = 64;

min\_write\_delay = 8200;

max\_write\_delay = 8200;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 10;

blocksize = 64;

readsize = 256;

;

memory "flash"

size = 1024;

min\_write\_delay = 4100;

max\_write\_delay = 4100;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 5;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "fuse"

size = 1;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x o o o o x x o o";

write = "1 0 1 0 1 1 0 0 1 0 1 x x x x x",

"x x x x x x x x i i i i 1 1 i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# AT90s1200

#------------------------------------------------------------

part

id = "1200";

desc = "AT90S1200";

is\_at90s1200 = yes;

stk500\_devcode = 0x33;

avr910\_devcode = 0x13;

signature = 0x1e 0x90 0x01;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 1;

bytedelay = 0;

pollindex = 0;

pollvalue = 0xFF;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 64;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x x a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 20;

blocksize = 32;

readsize = 256;

;

memory "flash"

size = 1024;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x02;

delay = 15;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

;

memory "lock"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

;

;

#------------------------------------------------------------

# AT90s4414

#------------------------------------------------------------

part

id = "4414";

desc = "AT90S4414";

stk500\_devcode = 0x50;

avr910\_devcode = 0x28;

signature = 0x1e 0x92 0x01;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x01;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 256;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x80;

readback\_p2 = 0x7f;

read = " 1 0 1 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "flash"

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x7f;

readback\_p2 = 0x7f;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# AT90s2313

#------------------------------------------------------------

part

id = "2313";

desc = "AT90S2313";

stk500\_devcode = 0x40;

avr910\_devcode = 0x20;

signature = 0x1e 0x91 0x01;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 128;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x80;

readback\_p2 = 0x7f;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "flash"

size = 2048;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x7f;

readback\_p2 = 0x7f;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x i i x",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# AT90s2333

#------------------------------------------------------------

part

id = "2333";

##### WARNING: No XML file for device 'AT90S2333'! #####

desc = "AT90S2333";

stk500\_devcode = 0x42;

avr910\_devcode = 0x34;

signature = 0x1e 0x91 0x05;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 128;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "flash"

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

pwroff\_after\_write = yes;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 i i i i i",

"x x x x x x x x x x x x x x x x";

;

memory "lock"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

;

;

#------------------------------------------------------------

# AT90s2343 (also AT90s2323 and ATtiny22)

#------------------------------------------------------------

part

id = "2343";

desc = "AT90S2343";

stk500\_devcode = 0x43;

avr910\_devcode = 0x4c;

signature = 0x1e 0x91 0x03;

chip\_erase\_delay = 18000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x00,

0x68, 0x78, 0x68, 0x68, 0x00, 0x00, 0x68, 0x78,

0x78, 0x00, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 0;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 50;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

memory "eeprom"

size = 128;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "flash"

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 128;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x o o o x x x x o";

write = "1 0 1 0 1 1 0 0 1 0 1 1 1 1 1 i",

"x x x x x x x x x x x x x x x x";

;

memory "lock"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x o o o x x x x o";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

;

;

#------------------------------------------------------------

# AT90s4433

#------------------------------------------------------------

part

id = "4433";

desc = "AT90S4433";

stk500\_devcode = 0x51;

avr910\_devcode = 0x30;

signature = 0x1e 0x92 0x03;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 256;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "flash"

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

pwroff\_after\_write = yes;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 i i i i i",

"x x x x x x x x x x x x x x x x";

;

memory "lock"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

;

;

#------------------------------------------------------------

# AT90s4434

#------------------------------------------------------------

part

id = "4434";

##### WARNING: No XML file for device 'AT90S4434'! #####

desc = "AT90S4434";

stk500\_devcode = 0x52;

avr910\_devcode = 0x6c;

signature = 0x1e 0x92 0x02;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

memory "eeprom"

size = 256;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

;

memory "flash"

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 i i i i i",

"x x x x x x x x x x x x x x x x";

;

memory "lock"

size = 1;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

;

;

#------------------------------------------------------------

# AT90s8515

#------------------------------------------------------------

part

id = "8515";

desc = "AT90S8515";

stk500\_devcode = 0x60;

avr910\_devcode = 0x38;

signature = 0x1e 0x93 0x01;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 512;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x80;

readback\_p2 = 0x7f;

read = " 1 0 1 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "flash"

size = 8192;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x7f;

readback\_p2 = 0x7f;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# AT90s8535

#------------------------------------------------------------

part

id = "8535";

desc = "AT90S8535";

stk500\_devcode = 0x61;

avr910\_devcode = 0x68;

signature = 0x1e 0x93 0x03;

chip\_erase\_delay = 20000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 1;

memory "eeprom"

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0x00;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "flash"

size = 8192;

min\_write\_delay = 9000;

max\_write\_delay = 20000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write\_lo = " 0 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

write\_hi = " 0 1 0 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 128;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "fuse"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x x x o";

write = "1 0 1 0 1 1 0 0 1 0 1 1 1 1 1 i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x o o x x x x x x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

;

#------------------------------------------------------------

# ATmega103

#------------------------------------------------------------

part

id = "m103";

desc = "ATmega103";

stk500\_devcode = 0xB1;

avr910\_devcode = 0x41;

signature = 0x1e 0x97 0x01;

chip\_erase\_delay = 112000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x8E, 0x9E, 0x2E, 0x3E, 0xAE, 0xBE,

0x4E, 0x5E, 0xCE, 0xDE, 0x6E, 0x7E, 0xEE, 0xDE,

0x66, 0x76, 0xE6, 0xF6, 0x6A, 0x7A, 0xEA, 0x7A,

0x7F, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 15;

chiperasepolltimeout = 0;

programfusepulsewidth = 2;

programfusepolltimeout = 0;

programlockpulsewidth = 0;

programlockpolltimeout = 10;

memory "eeprom"

size = 4096;

min\_write\_delay = 4000;

max\_write\_delay = 9000;

readback\_p1 = 0x80;

readback\_p2 = 0x7f;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 22000;

max\_write\_delay = 56000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x11;

delay = 70;

blocksize = 256;

readsize = 256;

;

memory "fuse"

size = 1;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x x x o x o 1 o o";

write = "1 0 1 0 1 1 0 0 1 0 1 1 i 1 i i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x o o x";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 i i 1",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega64

#------------------------------------------------------------

part

id = "m64";

desc = "ATmega64";

has\_jtag = yes;

stk500\_devcode = 0xA0;

avr910\_devcode = 0x45;

signature = 0x1e 0x96 0x02;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x22;

spmcr = 0x68;

allowfullpagebitstream = yes;

ocdrev = 2;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 20;

blocksize = 64;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega128

#------------------------------------------------------------

part

id = "m128";

desc = "ATmega128";

has\_jtag = yes;

stk500\_devcode = 0xB2;

avr910\_devcode = 0x43;

signature = 0x1e 0x97 0x02;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x22;

spmcr = 0x68;

rampz = 0x3b;

allowfullpagebitstream = yes;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 12;

blocksize = 64;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90CAN128

#------------------------------------------------------------

part

id = "c128";

desc = "AT90CAN128";

has\_jtag = yes;

stk500\_devcode = 0xB3;

# avr910\_devcode = 0x43;

signature = 0x1e 0x97 0x81;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x01;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

eecr = 0x3f;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90CAN64

#------------------------------------------------------------

part

id = "c64";

desc = "AT90CAN64";

has\_jtag = yes;

stk500\_devcode = 0xB3;

# avr910\_devcode = 0x43;

signature = 0x1e 0x96 0x81;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x01;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

eecr = 0x3f;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90CAN32

#------------------------------------------------------------

part

id = "c32";

desc = "AT90CAN32";

has\_jtag = yes;

stk500\_devcode = 0xB3;

# avr910\_devcode = 0x43;

signature = 0x1e 0x95 0x81;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x01;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

eecr = 0x3f;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 256;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega16

#------------------------------------------------------------

part

id = "m16";

desc = "ATmega16";

has\_jtag = yes;

stk500\_devcode = 0x82;

avr910\_devcode = 0x74;

signature = 0x1e 0x94 0x03;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 100;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = yes;

ocdrev = 2;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x04;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega164P

#------------------------------------------------------------

# close to ATmega16

part parent "m16"

id = "m164p";

desc = "ATmega164P";

signature = 0x1e 0x94 0x0a;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

allowfullpagebitstream = no;

chip\_erase\_delay = 55000;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega324P

#------------------------------------------------------------

# similar to ATmega164P

part

id = "m324p";

desc = "ATmega324P";

has\_jtag = yes;

stk500\_devcode = 0x82; # no STK500v1 support, use the ATmega16 one

avr910\_devcode = 0x74;

signature = 0x1e 0x95 0x08;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 55000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x 1 1 1 1 1 i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega324PA

#------------------------------------------------------------

# similar to ATmega324P

part parent "m324p"

id = "m324pa";

desc = "ATmega324PA";

signature = 0x1e 0x95 0x11;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega644

#------------------------------------------------------------

# similar to ATmega164

part

id = "m644";

desc = "ATmega644";

has\_jtag = yes;

stk500\_devcode = 0x82; # no STK500v1 support, use the ATmega16 one

avr910\_devcode = 0x74;

signature = 0x1e 0x96 0x09;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 55000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x02;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x 1 1 1 1 1 i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega644P

#------------------------------------------------------------

# similar to ATmega164p

part parent "m644"

id = "m644p";

desc = "ATmega644P";

signature = 0x1e 0x96 0x0a;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega1284P

#------------------------------------------------------------

# similar to ATmega164p

part

id = "m1284p";

desc = "ATmega1284P";

has\_jtag = yes;

stk500\_devcode = 0x82; # no STK500v1 support, use the ATmega16 one

avr910\_devcode = 0x74;

signature = 0x1e 0x97 0x05;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 55000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x02;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 256;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x 1 1 1 1 1 i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega162

#------------------------------------------------------------

part

id = "m162";

desc = "ATmega162";

has\_jtag = yes;

stk500\_devcode = 0x83;

avr910\_devcode = 0x63;

signature = 0x1e 0x94 0x04;

chip\_erase\_delay = 9000;

pagel = 0xd7;

bs2 = 0xa0;

idr = 0x04;

spmcr = 0x57;

allowfullpagebitstream = yes;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

ocdrev = 2;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 16000;

max\_write\_delay = 16000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 16000;

max\_write\_delay = 16000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 16000;

max\_write\_delay = 16000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x 1 1 1 1 1 i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 16000;

max\_write\_delay = 16000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega163

#------------------------------------------------------------

part

id = "m163";

desc = "ATmega163";

stk500\_devcode = 0x81;

avr910\_devcode = 0x64;

signature = 0x1e 0x94 0x02;

chip\_erase\_delay = 32000;

pagel = 0xd7;

bs2 = 0xa0;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 30;

programfusepulsewidth = 0;

programfusepolltimeout = 2;

programlockpulsewidth = 0;

programlockpolltimeout = 2;

memory "eeprom"

size = 512;

min\_write\_delay = 4000;

max\_write\_delay = 4000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 16000;

max\_write\_delay = 16000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x11;

delay = 20;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o x x o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i 1 1 i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x 1 o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x 1 1 1 1 1 i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x 0 x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega169

#------------------------------------------------------------

part

id = "m169";

desc = "ATmega169";

has\_jtag = yes;

stk500\_devcode = 0x85;

avr910\_devcode = 0x78;

signature = 0x1e 0x94 0x05;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

ocdrev = 2;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega329

#------------------------------------------------------------

part

id = "m329";

desc = "ATmega329";

has\_jtag = yes;

# stk500\_devcode = 0x85; # no STK500 support, only STK500v2

# avr910\_devcode = 0x?; # try the ATmega169 one:

avr910\_devcode = 0x75;

signature = 0x1e 0x95 0x03;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega329P

#------------------------------------------------------------

# Identical to ATmega329 except of the signature

part parent "m329"

id = "m329p";

desc = "ATmega329P";

signature = 0x1e 0x95 0x0b;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega3290

#------------------------------------------------------------

# identical to ATmega329

part parent "m329"

id = "m3290";

desc = "ATmega3290";

signature = 0x1e 0x95 0x04;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega3290P

#------------------------------------------------------------

# identical to ATmega3290 except of the signature

part parent "m3290"

id = "m3290p";

desc = "ATmega3290P";

signature = 0x1e 0x95 0x0c;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega649

#------------------------------------------------------------

part

id = "m649";

desc = "ATmega649";

has\_jtag = yes;

# stk500\_devcode = 0x85; # no STK500 support, only STK500v2

# avr910\_devcode = 0x?; # try the ATmega169 one:

avr910\_devcode = 0x75;

signature = 0x1e 0x96 0x03;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega6490

#------------------------------------------------------------

# identical to ATmega649

part parent "m649"

id = "m6490";

desc = "ATmega6490";

signature = 0x1e 0x96 0x04;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega32

#------------------------------------------------------------

part

id = "m32";

desc = "ATmega32";

has\_jtag = yes;

stk500\_devcode = 0x91;

avr910\_devcode = 0x72;

signature = 0x1e 0x95 0x02;

chip\_erase\_delay = 9000;

pagel = 0xd7;

bs2 = 0xa0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = yes;

ocdrev = 2;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x04;

delay = 10;

blocksize = 64;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 0 0 x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega161

#------------------------------------------------------------

part

id = "m161";

desc = "ATmega161";

stk500\_devcode = 0x80;

avr910\_devcode = 0x60;

signature = 0x1e 0x94 0x01;

chip\_erase\_delay = 28000;

pagel = 0xd7;

bs2 = 0xa0;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 30;

programfusepulsewidth = 0;

programfusepolltimeout = 2;

programlockpulsewidth = 0;

programlockpolltimeout = 2;

memory "eeprom"

size = 512;

min\_write\_delay = 3400;

max\_write\_delay = 3400;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 5;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 14000;

max\_write\_delay = 14000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 16;

blocksize = 128;

readsize = 256;

;

memory "fuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 x x x x x x x x",

"x x x x x x x x x o x o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 x x x x x",

"x x x x x x x x 1 i 1 i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega8

#------------------------------------------------------------

part

id = "m8";

desc = "ATmega8";

stk500\_devcode = 0x70;

avr910\_devcode = 0x76;

signature = 0x1e 0x93 0x07;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 10000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 2;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 512;

page\_size = 4;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 20;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 10;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 0 0 x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega8515

#------------------------------------------------------------

part

id = "m8515";

desc = "ATmega8515";

stk500\_devcode = 0x63;

avr910\_devcode = 0x3A;

signature = 0x1e 0x93 0x06;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 20;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 0 0 x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega8535

#------------------------------------------------------------

part

id = "m8535";

desc = "ATmega8535";

stk500\_devcode = 0x64;

avr910\_devcode = 0x69;

signature = 0x1e 0x93 0x08;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 6;

togglevtg = 0;

poweroffdelay = 0;

resetdelayms = 0;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 512;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

mode = 0x04;

delay = 20;

blocksize = 128;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 0 x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 2000;

max\_write\_delay = 2000;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 0 0 x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny26

#------------------------------------------------------------

part

id = "t26";

desc = "ATtiny26";

stk500\_devcode = 0x21;

avr910\_devcode = 0x5e;

signature = 0x1e 0x91 0x09;

pagel = 0xb3;

bs2 = 0xb2;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0xC4, 0xE4, 0xC4, 0xE4, 0xCC, 0xEC, 0xCC, 0xEC,

0xD4, 0xF4, 0xD4, 0xF4, 0xDC, 0xFC, 0xDC, 0xFC,

0xC8, 0xE8, 0xD8, 0xF8, 0x4C, 0x6C, 0x5C, 0x7C,

0xEC, 0xBC, 0x00, 0x06, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 2;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 128;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

mode = 0x04;

delay = 10;

blocksize = 64;

readsize = 256;

;

memory "flash"

paged = yes;

size = 2048;

page\_size = 32;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 16;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x x o o";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 1 i i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x x x x i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 4;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny261

#------------------------------------------------------------

# Close to ATtiny26

part

id = "t261";

desc = "ATtiny261";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x00, 0x10;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x00, 0xB4, 0x00, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

# stk500\_devcode = 0x21;

# avr910\_devcode = 0x5e;

signature = 0x1e 0x91 0x0c;

pagel = 0xb3;

bs2 = 0xb2;

chip\_erase\_delay = 4000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0xC4, 0xE4, 0xC4, 0xE4, 0xCC, 0xEC, 0xCC, 0xEC,

0xD4, 0xF4, 0xD4, 0xF4, 0xDC, 0xFC, 0xDC, 0xFC,

0xC8, 0xE8, 0xD8, 0xF8, 0x4C, 0x6C, 0x5C, 0x7C,

0xEC, 0xBC, 0x00, 0x06, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 2;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

size = 128;

page\_size = 4;

num\_pages = 32;

min\_write\_delay = 4000;

max\_write\_delay = 4000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 x x x x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 2048;

page\_size = 32;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x x x x a9 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x x o o";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 1 i i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x x x o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny461

#------------------------------------------------------------

# Close to ATtiny261

part

id = "t461";

desc = "ATtiny461";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x00, 0x10;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x00, 0xB4, 0x00, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

# stk500\_devcode = 0x21;

# avr910\_devcode = 0x5e;

signature = 0x1e 0x92 0x08;

pagel = 0xb3;

bs2 = 0xb2;

chip\_erase\_delay = 4000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0xC4, 0xE4, 0xC4, 0xE4, 0xCC, 0xEC, 0xCC, 0xEC,

0xD4, 0xF4, 0xD4, 0xF4, 0xDC, 0xFC, 0xDC, 0xFC,

0xC8, 0xE8, 0xD8, 0xF8, 0x4C, 0x6C, 0x5C, 0x7C,

0xEC, 0xBC, 0x00, 0x06, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 2;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

size = 256;

page\_size = 4;

num\_pages = 64;

min\_write\_delay = 4000;

max\_write\_delay = 4000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x x o o";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 1 i i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x x x o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny861

#------------------------------------------------------------

# Close to ATtiny461

part

id = "t861";

desc = "ATtiny861";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x00, 0x10;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x00, 0xB4, 0x00, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

# stk500\_devcode = 0x21;

# avr910\_devcode = 0x5e;

signature = 0x1e 0x93 0x0d;

pagel = 0xb3;

bs2 = 0xb2;

chip\_erase\_delay = 4000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 0;

pp\_controlstack =

0xC4, 0xE4, 0xC4, 0xE4, 0xCC, 0xEC, 0xCC, 0xEC,

0xD4, 0xF4, 0xD4, 0xF4, 0xDC, 0xFC, 0xDC, 0xFC,

0xC8, 0xE8, 0xD8, 0xF8, 0x4C, 0x6C, 0x5C, 0x7C,

0xEC, 0xBC, 0x00, 0x06, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 2;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

size = 512;

num\_pages = 128;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = " 1 1 0 0 0 0 0 0 x x x x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 x x x x x x x x",

"x x x x x x x x x x x x x x o o";

write = "1 0 1 0 1 1 0 0 1 1 1 1 1 1 i i",

"x x x x x x x x x x x x x x x x";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x x x o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega48

#------------------------------------------------------------

part

id = "m48";

desc = "ATmega48";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x59;

# avr910\_devcode = 0x;

signature = 0x1e 0x92 0x05;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 45000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

page\_size = 4;

size = 256;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x x x",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x x x o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega48P

#------------------------------------------------------------

part parent "m48"

id = "m48p";

desc = "ATmega48P";

signature = 0x1e 0x92 0x0a;

ocdrev = 1;

;

#------------------------------------------------------------

# ATmega88

#------------------------------------------------------------

part

id = "m88";

desc = "ATmega88";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x73;

# avr910\_devcode = 0x;

signature = 0x1e 0x93 0x0a;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

page\_size = 4;

size = 512;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega88P

#------------------------------------------------------------

part parent "m88"

id = "m88p";

desc = "ATmega88P";

signature = 0x1e 0x93 0x0f;

ocdrev = 1;

;

#------------------------------------------------------------

# ATmega168

#------------------------------------------------------------

part

id = "m168";

desc = "ATmega168";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x86;

# avr910\_devcode = 0x;

signature = 0x1e 0x94 0x06;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

page\_size = 4;

size = 512;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega168P

#------------------------------------------------------------

part parent "m168"

id = "m168p";

desc = "ATmega168P";

signature = 0x1e 0x94 0x0b;

ocdrev = 1;

;

#------------------------------------------------------------

# ATtiny88

#------------------------------------------------------------

part

id = "t88";

desc = "ATtiny88";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x73;

# avr910\_devcode = 0x;

signature = 0x1e 0x93 0x11;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

page\_size = 4;

size = 64;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 64;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega328

#------------------------------------------------------------

part

id = "m328";

desc = "ATmega328";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x86;

# avr910\_devcode = 0x;

signature = 0x1e 0x95 0x14;

pagel = 0xd7;

bs2 = 0xc2;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no;

page\_size = 4;

size = 1024;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x x x o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

part parent "m328"

id = "m328p";

desc = "ATmega328P";

signature = 0x1e 0x95 0x0F;

ocdrev = 1;

;

#------------------------------------------------------------

# ATtiny2313

#------------------------------------------------------------

part

id = "t2313";

desc = "ATtiny2313";

has\_debugwire = yes;

flash\_instr = 0xB2, 0x0F, 0x1F;

eeprom\_instr = 0xBB, 0xFE, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBA, 0x0F, 0xB2, 0x0F, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

stk500\_devcode = 0x23;

## Use the ATtiny26 devcode:

avr910\_devcode = 0x5e;

signature = 0x1e 0x91 0x0a;

pagel = 0xD4;

bs2 = 0xD6;

reset = io;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0E, 0x1E, 0x2E, 0x3E, 0x2E, 0x3E,

0x4E, 0x5E, 0x4E, 0x5E, 0x6E, 0x7E, 0x6E, 0x7E,

0x26, 0x36, 0x66, 0x76, 0x2A, 0x3A, 0x6A, 0x7A,

0x2E, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 0;

memory "eeprom"

size = 128;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 2048;

page\_size = 32;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

# The information in the data sheet of April/2004 is wrong, this works:

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

# The information in the data sheet of April/2004 is wrong, this works:

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

# The information in the data sheet of April/2004 is wrong, this works:

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny2313 has Signature Bytes: 0x1E 0x91 0x0A.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

# The Tiny2313 has calibration data for both 4 MHz and 8 MHz.

# The information in the data sheet of April/2004 is wrong, this works:

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny4313

#------------------------------------------------------------

part

id = "t4313";

desc = "ATtiny4313";

has\_debugwire = yes;

flash\_instr = 0xB2, 0x0F, 0x1F;

eeprom\_instr = 0xBB, 0xFE, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBA, 0x0F, 0xB2, 0x0F, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

stk500\_devcode = 0x23;

## Use the ATtiny26 devcode:

avr910\_devcode = 0x5e;

signature = 0x1e 0x92 0x0d;

pagel = 0xD4;

bs2 = 0xD6;

reset = io;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0E, 0x1E, 0x2E, 0x3E, 0x2E, 0x3E,

0x4E, 0x5E, 0x4E, 0x5E, 0x6E, 0x7E, 0x6E, 0x7E,

0x26, 0x36, 0x66, 0x76, 0x2A, 0x3A, 0x6A, 0x7A,

0x2E, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 0;

memory "eeprom"

size = 256;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny4313 has Signature Bytes: 0x1E 0x92 0x0D.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90PWM2

#------------------------------------------------------------

part

id = "pwm2";

desc = "AT90PWM2";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x65;

## avr910\_devcode = ?;

signature = 0x1e 0x93 0x81;

pagel = 0xD8;

bs2 = 0xE2;

reset = io;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 512;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

# AT90PWM2 has Signature Bytes: 0x1E 0x93 0x81.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90PWM3

#------------------------------------------------------------

# Completely identical to AT90PWM2 (including the signature!)

part parent "pwm2"

id = "pwm3";

desc = "AT90PWM3";

;

#------------------------------------------------------------

# AT90PWM2B

#------------------------------------------------------------

# Same as AT90PWM2 but different signature.

part parent "pwm2"

id = "pwm2b";

desc = "AT90PWM2B";

signature = 0x1e 0x93 0x83;

ocdrev = 1;

;

#------------------------------------------------------------

# AT90PWM3B

#------------------------------------------------------------

# Completely identical to AT90PWM2B (including the signature!)

part parent "pwm2b"

id = "pwm3b";

desc = "AT90PWM3B";

ocdrev = 1;

;

#------------------------------------------------------------

# AT90PWM316

#------------------------------------------------------------

# Similar to AT90PWM3B, but with 16 kiB flash, 512 B EEPROM, and 1024 B SRAM.

part parent "pwm3b"

id = "pwm316";

desc = "AT90PWM316";

signature = 0x1e 0x94 0x83;

ocdrev = 1;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x21;

delay = 6;

blocksize = 128;

readsize = 256;

;

;

#------------------------------------------------------------

# ATtiny25

#------------------------------------------------------------

part

id = "t25";

desc = "ATtiny25";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x02, 0x12;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x02, 0xB4, 0x02, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

## no STK500 devcode in XML file, use the ATtiny45 one

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x91 0x08;

reset = io;

chip\_erase\_delay = 4500;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 128;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 2048;

page\_size = 32;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny25 has Signature Bytes: 0x1E 0x91 0x08.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny45

#------------------------------------------------------------

part

id = "t45";

desc = "ATtiny45";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x02, 0x12;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x02, 0xB4, 0x02, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x92 0x06;

reset = io;

chip\_erase\_delay = 4500;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 256;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny45 has Signature Bytes: 0x1E 0x92 0x08. (Data sheet 2586C-AVR-06/05 (doc2586.pdf) indicates otherwise!)

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny85

#------------------------------------------------------------

part

id = "t85";

desc = "ATtiny85";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x02, 0x12;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x02, 0xB4, 0x02, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

## no STK500 devcode in XML file, use the ATtiny45 one

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x93 0x0b;

reset = io;

chip\_erase\_delay = 400000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x00;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 512;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 12;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 30000;

max\_write\_delay = 30000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny85 has Signature Bytes: 0x1E 0x93 0x08.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega640

#------------------------------------------------------------

# Almost same as ATmega1280, except for different memory sizes

part

id = "m640";

desc = "ATmega640";

signature = 0x1e 0x96 0x08;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega1280

#------------------------------------------------------------

part

id = "m1280";

desc = "ATmega1280";

signature = 0x1e 0x97 0x03;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega1281

#------------------------------------------------------------

# Identical to ATmega1280

part parent "m1280"

id = "m1281";

desc = "ATmega1281";

signature = 0x1e 0x97 0x04;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega2560

#------------------------------------------------------------

part

id = "m2560";

desc = "ATmega2560";

signature = 0x1e 0x98 0x01;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x02;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 4;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 262144;

page\_size = 256;

num\_pages = 1024;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

load\_ext\_addr = " 0 1 0 0 1 1 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 0 a16",

" 0 0 0 0 0 0 0 0";

mode = 0x41;

delay = 10;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega2561

#------------------------------------------------------------

part parent "m2560"

id = "m2561";

desc = "ATmega2561";

signature = 0x1e 0x98 0x02;

ocdrev = 4;

;

#------------------------------------------------------------

# ATmega128RFA1

#------------------------------------------------------------

# Identical to ATmega2561 but half the ROM

part parent "m2561"

id = "m128rfa1";

desc = "ATmega128RFA1";

signature = 0x1e 0xa7 0x01;

chip\_erase\_delay = 55000;

bs2 = 0xE2;

ocdrev = 3;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 50000;

max\_write\_delay = 50000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 256;

readsize = 256;

;

;

#------------------------------------------------------------

# ATmega256RFR2

#------------------------------------------------------------

part parent "m2561"

id = "m256rfr2";

desc = "ATmega256RFR2";

signature = 0x1e 0xa8 0x02;

chip\_erase\_delay = 55000;

bs2 = 0xE2;

ocdrev = 4;

;

#------------------------------------------------------------

# ATmega128RFR2

#------------------------------------------------------------

part parent "m128rfa1"

id = "m128rfr2";

desc = "ATmega128RFR2";

signature = 0x1e 0xa7 0x02;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega64RFR2

#------------------------------------------------------------

part parent "m128rfa1"

id = "m64rfr2";

desc = "ATmega64RFR2";

signature = 0x1e 0xa6 0x02;

ocdrev = 3;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 50000;

max\_write\_delay = 50000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 256;

readsize = 256;

;

;

#------------------------------------------------------------

# ATmega2564RFR2

#------------------------------------------------------------

part parent "m256rfr2"

id = "m2564rfr2";

desc = "ATmega2564RFR2";

signature = 0x1e 0xa8 0x03;

;

#------------------------------------------------------------

# ATmega1284RFR2

#------------------------------------------------------------

part parent "m128rfr2"

id = "m1284rfr2";

desc = "ATmega1284RFR2";

signature = 0x1e 0xa7 0x03;

;

#------------------------------------------------------------

# ATmega644RFR2

#------------------------------------------------------------

part parent "m64rfr2"

id = "m644rfr2";

desc = "ATmega644RFR2";

signature = 0x1e 0xa6 0x03;

;

#------------------------------------------------------------

# ATtiny24

#------------------------------------------------------------

part

id = "t24";

desc = "ATtiny24";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x07, 0x17;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x07, 0xB4, 0x07, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

## no STK500 devcode in XML file, use the ATtiny45 one

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x91 0x0b;

reset = io;

chip\_erase\_delay = 4500;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x0F;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 70;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 128;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"x a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 2048;

page\_size = 32;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x x a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny24 has Signature Bytes: 0x1E 0x91 0x0B.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x x x x x x x i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny44

#------------------------------------------------------------

part

id = "t44";

desc = "ATtiny44";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x07, 0x17;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x07, 0xB4, 0x07, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

## no STK500 devcode in XML file, use the ATtiny45 one

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x92 0x07;

reset = io;

chip\_erase\_delay = 4500;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x0F;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 70;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 256;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny44 has Signature Bytes: 0x1E 0x92 0x07.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x x x x x x x i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny84

#------------------------------------------------------------

part

id = "t84";

desc = "ATtiny84";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x07, 0x17;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x07, 0xB4, 0x07, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

## no STK500 devcode in XML file, use the ATtiny45 one

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x93 0x0c;

reset = io;

chip\_erase\_delay = 4500;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

hvsp\_controlstack =

0x4C, 0x0C, 0x1C, 0x2C, 0x3C, 0x64, 0x74, 0x66,

0x68, 0x78, 0x68, 0x68, 0x7A, 0x6A, 0x68, 0x78,

0x78, 0x7D, 0x6D, 0x0C, 0x80, 0x40, 0x20, 0x10,

0x11, 0x08, 0x04, 0x02, 0x03, 0x08, 0x04, 0x0F;

hventerstabdelay = 100;

hvspcmdexedelay = 0;

synchcycles = 6;

latchcycles = 1;

togglevtg = 1;

poweroffdelay = 25;

resetdelayms = 0;

resetdelayus = 70;

hvleavestabdelay = 100;

resetdelay = 25;

chiperasepolltimeout = 40;

chiperasetime = 0;

programfusepolltimeout = 25;

programlockpolltimeout = 25;

ocdrev = 1;

memory "eeprom"

size = 512;

paged = no;

page\_size = 4;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x a8",

"a7 a6 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" x a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 32;

readsize = 256;

;

# ATtiny84 has Signature Bytes: 0x1E 0x93 0x0C.

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x x x x x x x i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATtiny43U

#------------------------------------------------------------

part

id = "t43u";

desc = "ATtiny43u";

has\_debugwire = yes;

flash\_instr = 0xB4, 0x07, 0x17;

eeprom\_instr = 0xBB, 0xFF, 0xBB, 0xEE, 0xBB, 0xCC, 0xB2, 0x0D,

0xBC, 0x07, 0xB4, 0x07, 0xBA, 0x0D, 0xBB, 0xBC,

0x99, 0xE1, 0xBB, 0xAC;

stk500\_devcode = 0x14;

## avr910\_devcode = ?;

## Try the AT90S2313 devcode:

avr910\_devcode = 0x20;

signature = 0x1e 0x92 0x0C;

reset = io;

chip\_erase\_delay = 1000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack = 0x0E, 0x1E, 0x0E, 0x1E, 0x2E, 0x3E, 0x2E, 0x3E, 0x4E, 0x5E,

0x4E, 0x5E, 0x6E, 0x7E, 0x6E, 0x7E, 0x06, 0x16, 0x46, 0x56,

0x0A, 0x1A, 0x4A, 0x5A, 0x1E, 0x7C, 0x00, 0x01, 0x00, 0x00,

0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

hvspcmdexedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 20;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

size = 64;

paged = yes;

page\_size = 4;

num\_pages = 16;

min\_write\_delay = 4000;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = "1 0 1 0 0 0 0 0 0 0 0 x x x x x",

"0 0 a4 a3 a2 a1 a0 o o o o o o o o";

write = "1 1 0 0 0 0 0 0 0 0 0 x x x x x",

"0 0 a5 a4 a3 a2 a1 a0 i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x x",

" 0 0 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 5;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 4096;

page\_size = 64;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x x a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 64;

readsize = 256;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

memory "lock"

size = 1;

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x x x x i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 4500;

max\_write\_delay = 4500;

;

memory "calibration"

size = 2;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega32u4

#------------------------------------------------------------

part

id = "m32u4";

desc = "ATmega32U4";

signature = 0x1e 0x95 0x87;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90USB646

#------------------------------------------------------------

part

id = "usb646";

desc = "AT90USB646";

signature = 0x1e 0x96 0x82;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x x a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90USB647

#------------------------------------------------------------

# identical to AT90USB646

part parent "usb646"

id = "usb647";

desc = "AT90USB647";

signature = 0x1e 0x96 0x82;

ocdrev = 3;

;

#------------------------------------------------------------

# AT90USB1286

#------------------------------------------------------------

part

id = "usb1286";

desc = "AT90USB1286";

signature = 0x1e 0x97 0x82;

has\_jtag = yes;

# stk500\_devcode = 0xB2;

# avr910\_devcode = 0x43;

chip\_erase\_delay = 9000;

pagel = 0xD7;

bs2 = 0xA0;

reset = dedicated;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

rampz = 0x3b;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 4096;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" x x x x a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 131072;

page\_size = 256;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 x x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 256;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x x i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 x x x x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 x x x x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90USB1287

#------------------------------------------------------------

# identical to AT90USB1286

part parent "usb1286"

id = "usb1287";

desc = "AT90USB1287";

signature = 0x1e 0x97 0x82;

ocdrev = 3;

;

#------------------------------------------------------------

# AT90USB162

#------------------------------------------------------------

part

id = "usb162";

desc = "AT90USB162";

has\_jtag = no;

has\_debugwire = yes;

signature = 0x1e 0x94 0x82;

chip\_erase\_delay = 9000;

reset = io;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

pagel = 0xD7;

bs2 = 0xC6;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

num\_pages = 128;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# AT90USB82

#------------------------------------------------------------

# Changes against AT90USB162 (beside IDs)

# memory "flash"

# size = 8192;

# num\_pages = 64;

part

id = "usb82";

desc = "AT90USB82";

has\_jtag = no;

has\_debugwire = yes;

signature = 0x1e 0x93 0x82;

chip\_erase\_delay = 9000;

reset = io;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

pagel = 0xD7;

bs2 = 0xC6;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

num\_pages = 128;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 128;

num\_pages = 64;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega32U2

#------------------------------------------------------------

# Changes against AT90USB162 (beside IDs)

# memory "flash"

# size = 32768;

# num\_pages = 256;

# memory "eeprom"

# size = 1024;

# num\_pages = 256;

part

id = "m32u2";

desc = "ATmega32U2";

has\_jtag = no;

has\_debugwire = yes;

signature = 0x1e 0x95 0x8a;

chip\_erase\_delay = 9000;

reset = io;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

pagel = 0xD7;

bs2 = 0xC6;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

num\_pages = 256;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega16U2

#------------------------------------------------------------

# Changes against ATmega32U2 (beside IDs)

# memory "flash"

# size = 16384;

# num\_pages = 128;

# memory "eeprom"

# size = 512;

# num\_pages = 128;

part

id = "m16u2";

desc = "ATmega16U2";

has\_jtag = no;

has\_debugwire = yes;

signature = 0x1e 0x94 0x89;

chip\_erase\_delay = 9000;

reset = io;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

pagel = 0xD7;

bs2 = 0xC6;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

num\_pages = 128;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 128;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega8U2

#------------------------------------------------------------

# Changes against ATmega16U2 (beside IDs)

# memory "flash"

# size = 8192;

# page\_size = 64;

# blocksize = 64;

part

id = "m8u2";

desc = "ATmega8U2";

has\_jtag = no;

has\_debugwire = yes;

signature = 0x1e 0x93 0x89;

chip\_erase\_delay = 9000;

reset = io;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

pagel = 0xD7;

bs2 = 0xC6;

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

ocdrev = 1;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 512;

num\_pages = 128;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 20;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 8192;

page\_size = 64;

num\_pages = 128;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0x00;

readback\_p2 = 0x00;

read\_lo = " 0 0 1 0 0 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" x x x x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

"a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 64;

readsize = 256;

;

memory "lfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x i i i i i i i i";

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega325

#------------------------------------------------------------

part

id = "m325";

desc = "ATmega325";

signature = 0x1e 0x95 0x05;

has\_jtag = yes;

# stk500\_devcode = 0x??; # No STK500v1 support?

# avr910\_devcode = 0x??; # Try the ATmega16 one

avr910\_devcode = 0x74;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 4; /\* for parallel programming \*/

size = 1024;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 0 0 a9 a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 32768;

page\_size = 128;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 0 0 0 0 0",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 0 0 0 0 0",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 0 0 0 0 0",

"0 0 0 0 0 0 0 0 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"0 0 0 0 0 0 0 0 i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"0 0 0 0 0 0 0 0 i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"0 0 0 0 0 0 0 0 1 1 1 1 1 i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega645

#------------------------------------------------------------

part

id = "m645";

desc = "ATmega645";

signature = 0x1E 0x96 0x05;

has\_jtag = yes;

# stk500\_devcode = 0x??; # No STK500v1 support?

# avr910\_devcode = 0x??; # Try the ATmega16 one

avr910\_devcode = 0x74;

pagel = 0xd7;

bs2 = 0xa0;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0F, 0x1F, 0x2E, 0x3E, 0x2F, 0x3F,

0x4E, 0x5E, 0x4F, 0x5F, 0x6E, 0x7E, 0x6F, 0x7F,

0x66, 0x76, 0x67, 0x77, 0x6A, 0x7A, 0x6B, 0x7B,

0xBE, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 5;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

idr = 0x31;

spmcr = 0x57;

allowfullpagebitstream = no;

ocdrev = 3;

memory "eeprom"

paged = no; /\* leave this "no" \*/

page\_size = 8; /\* for parallel programming \*/

size = 2048;

min\_write\_delay = 9000;

max\_write\_delay = 9000;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 a2 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 0 0 0 a10 a9 a8",

" a7 a6 a5 a4 a3 0 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 10;

blocksize = 8;

readsize = 256;

;

memory "flash"

paged = yes;

size = 65536;

page\_size = 256;

num\_pages = 256;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 0 0 0 0 0",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 0 0 0 0 0",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" a15 a14 a13 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" 0 0 0 0 0 0 0 0";

mode = 0x41;

delay = 10;

blocksize = 128;

readsize = 256;

;

memory "lock"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x o o o o o o";

write = "1 0 1 0 1 1 0 0 1 1 1 0 0 0 0 0",

"0 0 0 0 0 0 0 0 1 1 i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "lfuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"0 0 0 0 0 0 0 0 i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "hfuse"

size = 1;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"0 0 0 0 0 0 0 0 i i i i i i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "efuse"

size = 1;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"0 0 0 0 0 0 0 0 1 1 1 1 1 i i i";

min\_write\_delay = 9000;

max\_write\_delay = 9000;

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 a1 a0 o o o o o o o o";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

;

#------------------------------------------------------------

# ATmega3250

#------------------------------------------------------------

part parent "m325"

id = "m3250";

desc = "ATmega3250";

signature = 0x1E 0x95 0x06;

ocdrev = 3;

;

#------------------------------------------------------------

# ATmega6450

#------------------------------------------------------------

part parent "m645"

id = "m6450";

desc = "ATmega6450";

signature = 0x1E 0x96 0x06;

ocdrev = 3;

;

#------------------------------------------------------------

# AVR XMEGA family common values

#------------------------------------------------------------

part

id = ".xmega";

desc = "AVR XMEGA family common values";

has\_pdi = yes;

nvm\_base = 0x01c0;

mcu\_base = 0x0090;

memory "signature"

size = 3;

offset = 0x1000090;

;

memory "prodsig"

size = 0x32;

offset = 0x8e0200;

page\_size = 0x32;

readsize = 0x32;

;

memory "fuse1"

size = 1;

offset = 0x8f0021;

;

memory "fuse2"

size = 1;

offset = 0x8f0022;

;

memory "fuse4"

size = 1;

offset = 0x8f0024;

;

memory "fuse5"

size = 1;

offset = 0x8f0025;

;

memory "lock"

size = 1;

offset = 0x8f0027;

;

memory "data"

# SRAM, only used to supply the offset

offset = 0x1000000;

;

;

#------------------------------------------------------------

# ATxmega16A4U

#------------------------------------------------------------

part parent ".xmega"

id = "x16a4u";

desc = "ATxmega16A4U";

signature = 0x1e 0x94 0x41;

memory "eeprom"

size = 0x400;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x4000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x803000;

page\_size = 0x100;

readsize = 0x100;

;

memory "boot"

size = 0x1000;

offset = 0x804000;

page\_size = 0x100;

readsize = 0x100;

;

memory "flash"

size = 0x5000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "usersig"

size = 0x100;

offset = 0x8e0400;

page\_size = 0x100;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega16C4

#------------------------------------------------------------

part parent "x16a4u"

id = "x16c4";

desc = "ATxmega16C4";

signature = 0x1e 0x95 0x44;

;

#------------------------------------------------------------

# ATxmega16D4

#------------------------------------------------------------

part parent "x16a4u"

id = "x16d4";

desc = "ATxmega16D4";

signature = 0x1e 0x94 0x42;

;

#------------------------------------------------------------

# ATxmega16A4

#------------------------------------------------------------

part parent "x16a4u"

id = "x16a4";

desc = "ATxmega16A4";

signature = 0x1e 0x94 0x41;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega32A4U

#------------------------------------------------------------

part parent ".xmega"

id = "x32a4u";

desc = "ATxmega32A4U";

signature = 0x1e 0x95 0x41;

memory "eeprom"

size = 0x400;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x8000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x807000;

page\_size = 0x100;

readsize = 0x100;

;

memory "boot"

size = 0x1000;

offset = 0x808000;

page\_size = 0x100;

readsize = 0x100;

;

memory "flash"

size = 0x9000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "usersig"

size = 0x100;

offset = 0x8e0400;

page\_size = 0x100;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega32C4

#------------------------------------------------------------

part parent "x32a4u"

id = "x32c4";

desc = "ATxmega32C4";

signature = 0x1e 0x94 0x43;

;

#------------------------------------------------------------

# ATxmega32D4

#------------------------------------------------------------

part parent "x32a4u"

id = "x32d4";

desc = "ATxmega32D4";

signature = 0x1e 0x95 0x42;

;

#------------------------------------------------------------

# ATxmega32A4

#------------------------------------------------------------

part parent "x32a4u"

id = "x32a4";

desc = "ATxmega32A4";

signature = 0x1e 0x95 0x41;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega64A4U

#------------------------------------------------------------

part parent ".xmega"

id = "x64a4u";

desc = "ATxmega64A4U";

signature = 0x1e 0x96 0x46;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x10000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x80f000;

page\_size = 0x100;

readsize = 0x100;

;

memory "boot"

size = 0x1000;

offset = 0x810000;

page\_size = 0x100;

readsize = 0x100;

;

memory "flash"

size = 0x11000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "usersig"

size = 0x100;

offset = 0x8e0400;

page\_size = 0x100;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega64C3

#------------------------------------------------------------

part parent "x64a4u"

id = "x64c3";

desc = "ATxmega64C3";

signature = 0x1e 0x96 0x49;

;

#------------------------------------------------------------

# ATxmega64D3

#------------------------------------------------------------

part parent "x64a4u"

id = "x64d3";

desc = "ATxmega64D3";

signature = 0x1e 0x96 0x4a;

;

#------------------------------------------------------------

# ATxmega64D4

#------------------------------------------------------------

part parent "x64a4u"

id = "x64d4";

desc = "ATxmega64D4";

signature = 0x1e 0x96 0x47;

;

#------------------------------------------------------------

# ATxmega64A1

#------------------------------------------------------------

part parent "x64a4u"

id = "x64a1";

desc = "ATxmega64A1";

signature = 0x1e 0x96 0x4e;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega64A1U

#------------------------------------------------------------

part parent "x64a1"

id = "x64a1u";

desc = "ATxmega64A1U";

signature = 0x1e 0x96 0x4e;

;

#------------------------------------------------------------

# ATxmega64A3

#------------------------------------------------------------

part parent "x64a1"

id = "x64a3";

desc = "ATxmega64A3";

signature = 0x1e 0x96 0x42;

;

#------------------------------------------------------------

# ATxmega64A3U

#------------------------------------------------------------

part parent "x64a1"

id = "x64a3u";

desc = "ATxmega64A3U";

signature = 0x1e 0x96 0x42;

;

#------------------------------------------------------------

# ATxmega64A4

#------------------------------------------------------------

part parent "x64a1"

id = "x64a4";

desc = "ATxmega64A4";

signature = 0x1e 0x96 0x46;

;

#------------------------------------------------------------

# ATxmega64B1

#------------------------------------------------------------

part parent "x64a1"

id = "x64b1";

desc = "ATxmega64B1";

signature = 0x1e 0x96 0x52;

;

#------------------------------------------------------------

# ATxmega64B3

#------------------------------------------------------------

part parent "x64a1"

id = "x64b3";

desc = "ATxmega64B3";

signature = 0x1e 0x96 0x51;

;

#------------------------------------------------------------

# ATxmega128C3

#------------------------------------------------------------

part parent ".xmega"

id = "x128c3";

desc = "ATxmega128C3";

signature = 0x1e 0x97 0x52;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x20000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "apptable"

size = 0x2000;

offset = 0x81e000;

page\_size = 0x200;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x820000;

page\_size = 0x200;

readsize = 0x100;

;

memory "flash"

size = 0x22000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "usersig"

size = 0x200;

offset = 0x8e0400;

page\_size = 0x200;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega128D3

#------------------------------------------------------------

part parent "x128c3"

id = "x128d3";

desc = "ATxmega128D3";

signature = 0x1e 0x97 0x48;

;

#------------------------------------------------------------

# ATxmega128D4

#------------------------------------------------------------

part parent "x128c3"

id = "x128d4";

desc = "ATxmega128D4";

signature = 0x1e 0x97 0x47;

;

#------------------------------------------------------------

# ATxmega128A1

#------------------------------------------------------------

part parent "x128c3"

id = "x128a1";

desc = "ATxmega128A1";

signature = 0x1e 0x97 0x4c;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega128A1 revision D

#------------------------------------------------------------

part parent "x128a1"

id = "x128a1d";

desc = "ATxmega128A1revD";

signature = 0x1e 0x97 0x41;

;

#------------------------------------------------------------

# ATxmega128A1U

#------------------------------------------------------------

part parent "x128a1"

id = "x128a1u";

desc = "ATxmega128A1U";

signature = 0x1e 0x97 0x4c;

;

#------------------------------------------------------------

# ATxmega128A3

#------------------------------------------------------------

part parent "x128a1"

id = "x128a3";

desc = "ATxmega128A3";

signature = 0x1e 0x97 0x42;

;

#------------------------------------------------------------

# ATxmega128A3U

#------------------------------------------------------------

part parent "x128a1"

id = "x128a3u";

desc = "ATxmega128A3U";

signature = 0x1e 0x97 0x42;

;

#------------------------------------------------------------

# ATxmega128A4

#------------------------------------------------------------

part parent ".xmega"

id = "x128a4";

desc = "ATxmega128A4";

signature = 0x1e 0x97 0x46;

has\_jtag = yes;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x20000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x81f000;

page\_size = 0x200;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x820000;

page\_size = 0x200;

readsize = 0x100;

;

memory "flash"

size = 0x22000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "usersig"

size = 0x200;

offset = 0x8e0400;

page\_size = 0x200;

readsize = 0x100;

;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega128A4U

#------------------------------------------------------------

part parent ".xmega"

id = "x128a4u";

desc = "ATxmega128A4U";

signature = 0x1e 0x97 0x46;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x20000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x81f000;

page\_size = 0x100;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x820000;

page\_size = 0x100;

readsize = 0x100;

;

memory "flash"

size = 0x22000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "usersig"

size = 0x100;

offset = 0x8e0400;

page\_size = 0x100;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega128B1

#------------------------------------------------------------

part parent ".xmega"

id = "x128b1";

desc = "ATxmega128B1";

signature = 0x1e 0x97 0x4d;

has\_jtag = yes;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x20000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "apptable"

size = 0x2000;

offset = 0x81e000;

page\_size = 0x100;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x820000;

page\_size = 0x100;

readsize = 0x100;

;

memory "flash"

size = 0x22000;

offset = 0x800000;

page\_size = 0x100;

readsize = 0x100;

;

memory "usersig"

size = 0x100;

offset = 0x8e0400;

page\_size = 0x100;

readsize = 0x100;

;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega128B3

#------------------------------------------------------------

part parent "x128b1"

id = "x128b3";

desc = "ATxmega128B3";

signature = 0x1e 0x97 0x4b;

;

#------------------------------------------------------------

# ATxmega192C3

#------------------------------------------------------------

part parent ".xmega"

id = "x192c3";

desc = "ATxmega192C3";

signature = 0x1e 0x97 0x51;

memory "eeprom"

size = 0x800;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x30000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "apptable"

size = 0x2000;

offset = 0x82e000;

page\_size = 0x200;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x830000;

page\_size = 0x200;

readsize = 0x100;

;

memory "flash"

size = 0x32000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "usersig"

size = 0x200;

offset = 0x8e0400;

page\_size = 0x200;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega192D3

#------------------------------------------------------------

part parent "x192c3"

id = "x192d3";

desc = "ATxmega192D3";

signature = 0x1e 0x97 0x49;

;

#------------------------------------------------------------

# ATxmega192A1

#------------------------------------------------------------

part parent "x192c3"

id = "x192a1";

desc = "ATxmega192A1";

signature = 0x1e 0x97 0x4e;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega192A3

#------------------------------------------------------------

part parent "x192a1"

id = "x192a3";

desc = "ATxmega192A3";

signature = 0x1e 0x97 0x44;

;

#------------------------------------------------------------

# ATxmega192A3U

#------------------------------------------------------------

part parent "x192a1"

id = "x192a3u";

desc = "ATxmega192A3U";

signature = 0x1e 0x97 0x44;

;

#------------------------------------------------------------

# ATxmega256C3

#------------------------------------------------------------

part parent ".xmega"

id = "x256c3";

desc = "ATxmega256C3";

signature = 0x1e 0x98 0x46;

memory "eeprom"

size = 0x1000;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x40000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "apptable"

size = 0x2000;

offset = 0x83e000;

page\_size = 0x200;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x840000;

page\_size = 0x200;

readsize = 0x100;

;

memory "flash"

size = 0x42000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "usersig"

size = 0x200;

offset = 0x8e0400;

page\_size = 0x200;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega256D3

#------------------------------------------------------------

part parent "x256c3"

id = "x256d3";

desc = "ATxmega256D3";

signature = 0x1e 0x98 0x44;

;

#------------------------------------------------------------

# ATxmega256A1

#------------------------------------------------------------

part parent "x256c3"

id = "x256a1";

desc = "ATxmega256A1";

signature = 0x1e 0x98 0x46;

has\_jtag = yes;

memory "fuse0"

size = 1;

offset = 0x8f0020;

;

;

#------------------------------------------------------------

# ATxmega256A3

#------------------------------------------------------------

part parent "x256a1"

id = "x256a3";

desc = "ATxmega256A3";

signature = 0x1e 0x98 0x42;

;

#------------------------------------------------------------

# ATxmega256A3U

#------------------------------------------------------------

part parent "x256a1"

id = "x256a3u";

desc = "ATxmega256A3U";

signature = 0x1e 0x98 0x42;

;

#------------------------------------------------------------

# ATxmega256A3B

#------------------------------------------------------------

part parent "x256a1"

id = "x256a3b";

desc = "ATxmega256A3B";

signature = 0x1e 0x98 0x43;

;

#------------------------------------------------------------

# ATxmega256A3BU

#------------------------------------------------------------

part parent "x256a1"

id = "x256a3bu";

desc = "ATxmega256A3BU";

signature = 0x1e 0x98 0x43;

;

#------------------------------------------------------------

# ATxmega384C3

#------------------------------------------------------------

part parent ".xmega"

id = "x384c3";

desc = "ATxmega384C3";

signature = 0x1e 0x98 0x45;

memory "eeprom"

size = 0x1000;

offset = 0x8c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x60000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "apptable"

size = 0x2000;

offset = 0x85e000;

page\_size = 0x200;

readsize = 0x100;

;

memory "boot"

size = 0x2000;

offset = 0x860000;

page\_size = 0x200;

readsize = 0x100;

;

memory "flash"

size = 0x62000;

offset = 0x800000;

page\_size = 0x200;

readsize = 0x100;

;

memory "usersig"

size = 0x200;

offset = 0x8e0400;

page\_size = 0x200;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega384D3

#------------------------------------------------------------

part parent "x384c3"

id = "x384d3";

desc = "ATxmega384D3";

signature = 0x1e 0x98 0x47;

;

#------------------------------------------------------------

# ATxmega8E5

#------------------------------------------------------------

part parent ".xmega"

id = "x8e5";

desc = "ATxmega8E5";

signature = 0x1e 0x93 0x41;

memory "eeprom"

size = 0x0200;

offset = 0x08c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x2000;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "apptable"

size = 0x800;

offset = 0x00801800;

page\_size = 0x80;

readsize = 0x100;

;

memory "boot"

size = 0x800;

offset = 0x00804000;

page\_size = 0x80;

readsize = 0x100;

;

memory "flash"

size = 0x2800;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "usersig"

size = 0x80;

offset = 0x8e0400;

page\_size = 0x80;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega16E5

#------------------------------------------------------------

part parent ".xmega"

id = "x16e5";

desc = "ATxmega16E5";

signature = 0x1e 0x94 0x45;

memory "eeprom"

size = 0x0200;

offset = 0x08c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x4000;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x00803000;

page\_size = 0x80;

readsize = 0x100;

;

memory "boot"

size = 0x1000;

offset = 0x00804000;

page\_size = 0x80;

readsize = 0x100;

;

memory "flash"

size = 0x5000;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "usersig"

size = 0x80;

offset = 0x8e0400;

page\_size = 0x80;

readsize = 0x100;

;

;

#------------------------------------------------------------

# ATxmega32E5

#------------------------------------------------------------

part parent ".xmega"

id = "x32e5";

desc = "ATxmega32E5";

signature = 0x1e 0x95 0x4c;

memory "eeprom"

size = 0x0400;

offset = 0x08c0000;

page\_size = 0x20;

readsize = 0x100;

;

memory "application"

size = 0x8000;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "apptable"

size = 0x1000;

offset = 0x00807000;

page\_size = 0x80;

readsize = 0x100;

;

memory "boot"

size = 0x1000;

offset = 0x00804000;

page\_size = 0x80;

readsize = 0x100;

;

memory "flash"

size = 0x9000;

offset = 0x0800000;

page\_size = 0x80;

readsize = 0x100;

;

memory "usersig"

size = 0x80;

offset = 0x8e0400;

page\_size = 0x80;

readsize = 0x100;

;

;

#------------------------------------------------------------

# AVR32UC3A0512

#------------------------------------------------------------

part

id = "uc3a0512";

desc = "AT32UC3A0512";

signature = 0xED 0xC0 0x3F;

has\_jtag = yes;

is\_avr32 = yes;

memory "flash"

paged = yes;

page\_size = 512; # bytes

readsize = 512; # bytes

num\_pages = 1024; # could be set dynamicly

size = 0x00080000; # could be set dynamicly

offset = 0x80000000;

;

;

part parent "uc3a0512"

id = "ucr2";

desc = "deprecated, use 'uc3a0512'";

;

#------------------------------------------------------------

# ATtiny1634.

#------------------------------------------------------------

part

id = "t1634";

desc = "ATtiny1634";

has\_debugwire = yes;

flash\_instr = 0xB6, 0x01, 0x11;

eeprom\_instr = 0xBD, 0xF2, 0xBD, 0xE1, 0xBB, 0xCF, 0xB4, 0x00,

0xBE, 0x01, 0xB6, 0x01, 0xBC, 0x00, 0xBB, 0xBF,

0x99, 0xF9, 0xBB, 0xAF;

stk500\_devcode = 0x86;

# avr910\_devcode = 0x;

signature = 0x1e 0x94 0x12;

pagel = 0xB3;

bs2 = 0xB1;

reset = io;

chip\_erase\_delay = 9000;

pgm\_enable = "1 0 1 0 1 1 0 0 0 1 0 1 0 0 1 1",

"x x x x x x x x x x x x x x x x";

chip\_erase = "1 0 1 0 1 1 0 0 1 0 0 x x x x x",

"x x x x x x x x x x x x x x x x";

timeout = 200;

stabdelay = 100;

cmdexedelay = 25;

synchloops = 32;

bytedelay = 0;

pollindex = 3;

pollvalue = 0x53;

predelay = 1;

postdelay = 1;

pollmethod = 1;

pp\_controlstack =

0x0E, 0x1E, 0x0E, 0x1E, 0x2E, 0x3E, 0x2E, 0x3E,

0x4E, 0x5E, 0x4E, 0x5E, 0x6E, 0x7E, 0x6E, 0x7E,

0x26, 0x36, 0x66, 0x76, 0x2A, 0x3A, 0x6A, 0x7A,

0x2E, 0xFD, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

hventerstabdelay = 100;

progmodedelay = 0;

latchcycles = 0;

togglevtg = 1;

poweroffdelay = 15;

resetdelayms = 1;

resetdelayus = 0;

hvleavestabdelay = 15;

resetdelay = 15;

chiperasepulsewidth = 0;

chiperasepolltimeout = 10;

programfusepulsewidth = 0;

programfusepolltimeout = 5;

programlockpulsewidth = 0;

programlockpolltimeout = 5;

memory "eeprom"

paged = no;

page\_size = 4;

size = 256;

min\_write\_delay = 3600;

max\_write\_delay = 3600;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read = " 1 0 1 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

write = " 1 1 0 0 0 0 0 0",

" 0 0 0 x x x x a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_lo = " 1 1 0 0 0 0 0 1",

" 0 0 0 0 0 0 0 0",

" 0 0 0 0 0 0 a1 a0",

" i i i i i i i i";

writepage = " 1 1 0 0 0 0 1 0",

" 0 0 x x x x x a8",

" a7 a6 a5 a4 a3 a2 0 0",

" x x x x x x x x";

mode = 0x41;

delay = 5;

blocksize = 4;

readsize = 256;

;

memory "flash"

paged = yes;

size = 16384;

page\_size = 32;

num\_pages = 512;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

readback\_p1 = 0xff;

readback\_p2 = 0xff;

read\_lo = " 0 0 1 0 0 0 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

read\_hi = " 0 0 1 0 1 0 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 a5 a4 a3 a2 a1 a0",

" o o o o o o o o";

loadpage\_lo = " 0 1 0 0 0 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

loadpage\_hi = " 0 1 0 0 1 0 0 0",

" 0 0 0 x x x x x",

" x x a5 a4 a3 a2 a1 a0",

" i i i i i i i i";

writepage = " 0 1 0 0 1 1 0 0",

" 0 0 0 a12 a11 a10 a9 a8",

" a7 a6 x x x x x x",

" x x x x x x x x";

mode = 0x41;

delay = 6;

blocksize = 128;

readsize = 256;

;

memory "lfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "hfuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x o o o o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 1 0 0 0",

"x x x x x x x x i i i i i i i i";

;

memory "efuse"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 0 0 0 0 0 0 0 0 1 0 0 0",

"x x x x x x x x x x x o o o o o";

write = "1 0 1 0 1 1 0 0 1 0 1 0 0 1 0 0",

"x x x x x x x x x x x i i i i i";

;

memory "lock"

size = 1;

min\_write\_delay = 4500;

max\_write\_delay = 4500;

read = "0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0",

"x x x x x x x x x x x x x x o o";

write = "1 0 1 0 1 1 0 0 1 1 1 x x x x x",

"x x x x x x x x 1 1 1 1 1 1 i i";

;

memory "calibration"

size = 1;

read = "0 0 1 1 1 0 0 0 0 0 0 x x x x x",

"0 0 0 0 0 0 0 0 o o o o o o o o";

;

memory "signature"

size = 3;

read = "0 0 1 1 0 0 0 0 0 0 0 x x x x x",

"x x x x x x a1 a0 o o o o o o o o";

;

;

#------------------------------------------------------------

# Common values for reduced core tinys (4/5/9/10/20/40)

#------------------------------------------------------------

part

id = ".reduced\_core\_tiny";

desc = "Common values for reduced core tinys";

has\_tpi = yes;

memory "signature"

size = 3;

offset = 0x3fc0;

page\_size = 16;

;

memory "fuse"

size = 1;

offset = 0x3f40;

page\_size = 16;

blocksize = 4;

;

memory "calibration"

size = 1;

offset = 0x3f80;

page\_size = 16;

;

memory "lockbits"

size = 1;

offset = 0x3f00;

page\_size = 16;

;

;

#------------------------------------------------------------

# ATtiny4

#------------------------------------------------------------

part parent ".reduced\_core\_tiny"

id = "t4";

desc = "ATtiny4";

signature = 0x1e 0x8f 0x0a;

memory "flash"

size = 512;

offset = 0x4000;

page\_size = 16;

blocksize = 128;

;

;

#------------------------------------------------------------

# ATtiny5

#------------------------------------------------------------

part parent "t4"

id = "t5";

desc = "ATtiny5";

signature = 0x1e 0x8f 0x09;

;

#------------------------------------------------------------

# ATtiny9

#------------------------------------------------------------

part parent ".reduced\_core\_tiny"

id = "t9";

desc = "ATtiny9";

signature = 0x1e 0x90 0x08;

memory "flash"

size = 1024;

offset = 0x4000;

page\_size = 16;

blocksize = 128;

;

;

#------------------------------------------------------------

# ATtiny10

#------------------------------------------------------------

part parent "t9"

id = "t10";

desc = "ATtiny10";

signature = 0x1e 0x90 0x03;

;

#------------------------------------------------------------

# ATtiny20

#------------------------------------------------------------

part parent ".reduced\_core\_tiny"

id = "t20";

desc = "ATtiny20";

signature = 0x1e 0x91 0x0F;

memory "flash"

size = 2048;

offset = 0x4000;

page\_size = 16;

blocksize = 128;

;

;

#------------------------------------------------------------

# ATtiny40

#------------------------------------------------------------

part parent ".reduced\_core\_tiny"

id = "t40";

desc = "ATtiny40";

signature = 0x1e 0x92 0x0E;

memory "flash"

size = 4096;

offset = 0x4000;

page\_size = 64;

blocksize = 128;

;

;

#------------------------------------------------------------

# ATmega406

#------------------------------------------------------------

part

id = "m406";

desc = "ATMEGA406";

has\_jtag = yes;

signature = 0x1e 0x95 0x07;

# STK500 parameters (parallel programming IO lines)

pagel = 0xa7;

bs2 = 0xa0;

serial = no;

parallel = yes;

# STK500v2 HV programming parameters, from XML

pp\_controlstack = 0x0e, 0x1e, 0x0f, 0x1f, 0x2e, 0x3e, 0x2f, 0x3f,

0x4e, 0x5e, 0x4f, 0x5f, 0x6e, 0x7e, 0x6f, 0x7f,

0x66, 0x76, 0x67, 0x77, 0x6a, 0x7a, 0x6b, 0x7b,

0xbe, 0xfd, 0x00, 0x01, 0x00, 0x00, 0x00, 0x00;

# JTAG ICE mkII parameters, also from XML files

allowfullpagebitstream = no;

enablepageprogramming = yes;

idr = 0x51;

rampz = 0x00;

spmcr = 0x57;

eecr = 0x3f;

memory "eeprom"

paged = no;

size = 512;

page\_size = 4;

blocksize = 4;

readsize = 4;

num\_pages = 128;

;

memory "flash"

paged = yes;

size = 40960;

page\_size = 128;

blocksize = 128;

readsize = 128;

num\_pages = 320;

;

memory "hfuse"

size = 1;

;

memory "lfuse"

size = 1;

;

memory "lockbits"

size = 1;

;

memory "signature"

size = 3;

;

;