Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

# JTAG-Booster for
# AMD ÉlanSC400/ÉlanSC410


P.O: Box 1103 • D-79200 Breisach, Germany
Kueferstrasse 8 • D-79206 Breisach, Germany
Tel. +49 (7667) 908-0 • Fax +49 (7667) 908-200
sales@fsforth.de • http://www.fsforth.de

FS FORTH-SYSTEME GmbH
Postfach 1103, D-79200 Breisach, Germany

Release of Document: May 17, 2002
Author: Dieter Fögele
Filename: JTAGEL4c.doc
Program Version: 4.xx

## Table of Contents

# 1. General

The program JTAGEL4.EXE uses the JTAG port of the AMD ÉlanSC400/ÉlanSC410 embedded microprocessor in conjunction with the small JTAG-Booster:

- to program data into flash memory
- to verify and read the contents of a flash memory
- to load data to static memory
- to upload data from target to host
- to do a memory test
- to make a memory dump
- to access an I²C Device
- to test CPU signals

All functions are done without any piece of software running in the target. No firmware or BIOS must be written. Bootstrap software may be downloaded to initially unprogrammed memories.

For latest documentation please refer to the file README.TXT on the distribution disk.

## 1.1. Ordering Information

The following related products are available

- 926 JTAG-Booster AMD ÉlanSC400/ÉlanSC410, 5V,
  DOS/Win9x/WinNT,
  delivered with adapter type 227

- 945 JTAG-Booster AMD ÉlanSC400/ÉlanSC410, 3.3V,
  DOS/Win9x/WinNT,
  delivered with adapter type 285

## 1.2. System Requirements

To successfully run this tool the following requirements must be met:

- MSDOS, WIN3.x, WIN9x, WinME, WinNT or Win2000
  (WinNT/Win2000 is supported with an additional tool, see chapter 5)

- Intel 80386 or higher

- 205 kByte of free DOS memory

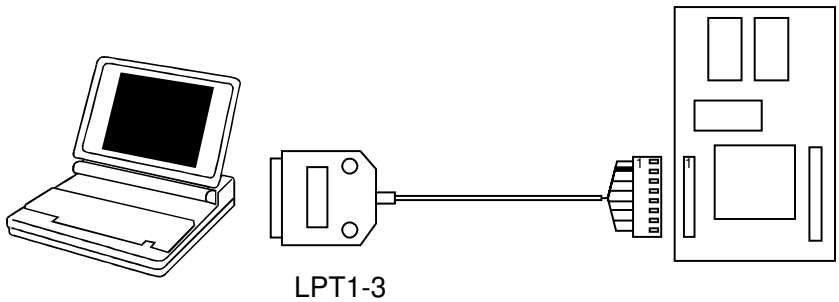
- Parallel Port

## 1.3. Contents of Distribution Disk

- JTAGEL4.EXE
  JTAGEL4.OVL — Tool for AMD ÉlanSC400/ÉlanSC410
- JTAGEL4.INI — Template configuration file for AMD ÉlanSC400/ÉlanSC410. See chapter 1.8 "Initialization file JTAGEL4.INI"
- HEX2BIN.EXE — Converter program to convert Intel HEX and Motorola S-Record files to binary. See chapter 4 "Converter Program HEX2BIN.EXE"
- WinNT — Support for Windows NT and Windows 2000. See chapter 5 "Support for Windows NT and Windows 2000"
- JTAG_V4xx_FLASHES.pdf — List of all supported Flash devices
- README.txt — Release notes, new features, known problems

## 1.4. Connecting your PC to the target system

The JTAG-Booster can be plugged into standard parallel ports (LPT1-3) with a DB25-Connector.



LPT1-3

The target end of the cable has the following reference:

| 1 | 2* | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| TCK | GND | TMS | TRST# | NC | TDI | TDO | +3.3V / +5V |

*PIN 2 can be detected by the white thick cable.

To connect your design to the JTAG-BOOSTER you need a single row berg connector with a spacing of 2.54mm on your PCB. The names refer to the target: Pin 7 is the target's TDO pin and is connected to the JTAG-Booster's TDI pin.

There are two versions of the JTAG-Booster available: A 5V version (FS part number 227) and a 3.3V version (FS part number 285). **Don't apply 5V to the 3.3V version of the JTAG-Booster!**

Your target must be able to power the JTAG-Booster, it draws about 100mA.

Before you start the program, the JTAG-BOOSTER must be plugged to a parallel interface of your PC and to the 8 pin JTAG connector on the target.

The utility is started with the general command line format:

JTAGEL4 /function [filename] [/option_1] ... [/option_n].

Note that the function must be the first argument followed (if needed) by the filename.

If you want to cancel execution of JTAGEL4, press CTRL-Break-Key.

On any error the program aborts with an MSDOS error level of one.

## 1.5. First Example with AMD ÉlanSC400/ÉlanSC410

In the following simple example it is assumed that the JTAG-Booster is connected to LPT1 of your PC and target power is on.

Typing

```
JTAGEL4  /P  MYAPP.BIN
```

at the DOS prompt results in the following output:

```
JTAGEL4 --- JTAG utility for AMD ÉlanSC400/ÉlanSC410
Copyright © FS FORTH-SYSTEME GmbH, Breisach
Version 4.xx of mm/dd/yyyy

(1)   Configuration loaded from file JTAGEL4.INI
(2)   Target: FS FORTH-SYSTEME module ELAN486 on EVAELAN_2
(3)   Using LPT at I/O-address 0378h
(4)   JTAG Adapter detected

(5)   1 Device detected in JTAG chain
        Device 0: IDCODE=00FFF003   AMD ÉlanSC400/ÉlanSC410, Revison 0
(6)   Sum of instruction register bits   : 4
(7)   CPU position                       : 0
(8)   Instruction register offset        : 0
(9)   Length of boundary scan reg        : 282

      Looking for a known flash device. Please wait..
(10)  Dual AMD 29F800T, Boot Block Top detected
(11)  Bus size is 32 Bit
(12)  Erasing Flash-EPROM Block #:0
      Programming File MYAPP.BIN
      65536 Bytes programmed
      Programming ok

      Erase Time          :      1.0 sec
      Programming Time    :     39.3 sec
```

(1) The initialization file JTAGEL4.INI was found in the current directory.

(2) The target identification line of the initialization file is printed here.

(3) The resulting I/O-address of the parallel port is printed here.

(4) A JTAG-Booster is found on the parallel port

(5) The JTAG chain is analyzed. There may be several parts in the JTAG chain. The chain is analyzed and all parts except the AMD ÉlanSC400/ÉlanSC410 are switched to bypass mode.

(6) The length of all instruction registers in the JTAG chain are added.

(7) The position of the AMD ÉlanSC400/ÉlanSC410 in the JTAG chain is checked.

(8) The position of the JTAG instruction register of the AMD ÉlanSC400/ÉlanSC410 is checked

(9) The real length of the boundary scan register is displayed here and compared with the boundary scan register length of a AMD ÉlanSC400/ÉlanSC410.

(10) Dual Flash-EPROM AMD 29F800T selected with chip select ROMCS0# was found.

(11) The resulting data bus size is printed here.

(12) In this example one block must be erased.

## 1.6. Trouble Shooting

Avoid long distances between your Host-PC and the target. If you are using standard parallel extension cable, the JTAG-BOOSTER may not work. Don't use Dongles between the parallel port and the JTAG-BOOSTER.

Switch off all special modes of your printer port (EPP, ECP, ...) in the BIOS setup. Only standard parallel port (SPP) mode is allowed.

On very fast PCs there could be verify errors. To avoid this, watch for the ´IO recovery time´-switch in the BIOS Setup which must be turned on. Otherwise try to slow down your PC by setting the turbo switch off.

If there are problems with autodetection of the flash devices use the /DEVICE= option. To speed up autodetection specify one of the options /8BIT or /16BIT.

Don't use hardware protected flash memories.

The used chip selects must be defined as output and inactive in the initialization file (see chapter 1.8 “Initialization file JTAGEL4.INI”). Also the address bits must be defined as output.

Use the option /NOWRSETUP to speed up flash programming.

## 1.7. Error Messages

- **80386 or greater required**
  The JTAG-BOOSTER does not work on a 8088/8086 or a 80286 platform.

- **Adapter not connected or target power fail**
  The JTAG-Booster wasn't found. Please check connection to parallel port and connection to target. Check target power. Check your BIOS-Setup.

- **Can't open x:\yyy\zzz\JTAGEL4.OVL**
  The overlay file JTAGEL4.OVL must be in the same directory as JTAGEL4.EXE.

- **Configuration file XYZ not found.**
  The file specified with the option /INI= wasn't found.

- **Device offset out of range**
  The value specified with the option /OFFSET= is greater than the size of the detected flash device.

- **Disk full**
  Writing a output file was aborted as a result of missing disk space.

- **Do not specify option /NOCS with any other chip select**
  There is a conflict in the command line.

- **Do not specify option /BYTE-MODE. *Flash device* does not have a byte mode pin.**
  The flash device specified with the option /DEVICE= does not support switching between 16 (or 32) bit mode and 8 bit mode. In practice it does not have a pin with the name BYTE#

- **Error creating file:**
  The output file could not be opened. Please check free disk space or write protection.

- **Error: *Pin-Name* is an output only pin**
  The specified pin cannot be sampled. Check the command line. Check the initialization file.

- **Error: *Pin-Name* is an input only pin**
  The specified pin cannot be activated. Check the command line. Check the initialization file.

- **Error: *Pin-Name* may not be read back**
  The specified pin can be switched to tristate, but cannot be read back. Check the command line.

- **illegal function:**
  The first parameter of the command line must be a valid function. See chapter 2 “JTAGEL4 Parameter Description” for a list of supported functions.

- **illegal number:**
  The specified number couldn’t be interpret as a valid number. Check the relevant number base.

- **illegal option:**
  See chapter 2 “JTAGEL4 Parameter Description” for a list of supported options.

- **illegal Pin Type:**
  The name specified with the option /PIN= must be one of the list of chapter 1.8 ”Initialization file JTAGEL4.INI”

- **illegal Flash Type:**
  The name specified with the option /DEVICE= must be one of the list of chapter 1.9 ”Supported flash devices”.

- **Input file not found:**
  The specified file cannot be found

- **Input file is empty:**
  Files with zero length are not accepted

- **" " is undefined**
  Please check the syntax in your configuration file. (See chapter 1.8 “Initialization file JTAGEL4.INI”).

- **LPTx not installed**
  The LPT port specified with /LPTx cannot be found. Please check the LPT port or specify a installed LPT port. Check your BIOS setup.

- **missing filename**
  Most functions need a filename as second parameter.

- **missing option /I2CCLK=**
  Some functions need the option /I2CCLK= to be defined.

- **missing option /I2CDAT=**
  Some functions need the option /I2CDAT= or the options /I2CDATO= and /I2CDATI= to be defined.

- **missing option /LENGTH=**
  Some functions need the option /LENGTH= to be defined.

- **missing option /PIN=**
  Some functions need the option /PIN= to be defined.

- **More than 9 devices in the JTAG chain or TDI pin stuck at low level**
  The JTAG chain is limited to 9 parts. Check target power. Check the target's TDO pin.

- **No devices found in JTAG chain or TDI pin stuck at high level**
  A stream of 32 high bits was detected on the pin TDI. TDI may stuck at high level. Check the connection to your target. Check the target power. Check the target's TDO pin.

- **Option /CPUPOS= out of range**
  The number specified with the option /CPUPOS= must be less or equal to the number of parts minus 1.

- **Option /IROFFS= out of range**
  Please specify a smaller value

- **Part at specified position is not a AMD ÉlanSC400/ÉlanSC410**
  The option /CPUPOS= points to a part not a AMD ÉlanSC400/ÉlanSC410

- **Pins specified with /I2CCLK= and /I2CDAT= must have different control cells**
  The pin specified with the option /I2CDAT= must be able to be switched to high impedance while the pin specified with option /I2CCLK= is an active output. See chapter 1.8 “Initialization file JTAGEL4.INI”.

- **Pins specified with /I2CCLK= and /I2CDATI= must have different control cells**
  The pin specified with the option /I2CDATI= must be able to be switched to high impedance while the pin specified with option /I2CCLK= is an active output. See chapter 1.8 “Initialization file JTAGEL4.INI”.

- **Pins specified with /I2CDATO= and /I2CDATI= must have different control cells**
  The pin specified with the option /I2CDATI= must be able to be switched to high impedance while the pin specified with option /I2CDATO= is an active output. See chapter 1.8 “Initialization file JTAGEL4.INI”.

- **Specify only one of that options:**
  Some options are exclusive (i.e. /8BIT and /16BIT). Don't mix them.

- **Sum of instruction register bits to low. Should be at least 4 bits for a AMD ÉlanSC400/ÉlanSC410**
  The sum of all instruction register bits in the JTAG chain does not fit to the AMD ÉlanSC400/ÉlanSC410. Check the target connection. Check the target CPU type. Check the settings for /IROFFS= and /CPUPOS= , if there are several parts in the JTAG chain.

- **Target no longer connected**
  There is a cyclic check of the JTAG chain. Check target power. Check target connection.

- **There are unknown parts in the JTAG chain. Please use the option /IROFFS= to specify the instr. reg. offset of the CPU.**
  If there are unknown parts in the JTAG chain, the program isn’t able to determine the logical position of the CPU’s instruction register.

- **There is no AMD ÉlanSC400/ÉlanSC410 in the JTAG chain**
  No AMD ÉlanSC400/ÉlanSC410 was found in the JTAG chain. Check the target power. Try with option /DRIVER=4 again.

- **Value of option /FILE-OFFSET out of range**
  The value of the option /FILE-OFFSET= points behind end of file.

- **wrong driver #**
  The value specified with the option /DRIVER= is out of range.

- **wrong Identifier (xxxx)**
  No valid identifier found. Check the specified chip select signal and the bus width. Try with the option /DEVICE= .

- **Wrong length of boundary scan register. Should be 282 for a AMD ÉlanSC400/ÉlanSC410.**
  The length of the boundary scan register of the selected part (if there are more than one in the chain) does not fit to the AMD ÉlanSC400/ÉlanSC410. Check the target connection. Check the target CPU type. Check the settings for /IROFFS= and /CPUPOS= , if there are several parts in the JTAG chain.

## 1.8. Initialization file JTAGEL4.INI

This file is used to define the default direction and level of all CPU signals. This file **must be carefully adapted** to your design with the AMD ÉlanSC400/ÉlanSC410. The Target-Entry is used to identify your design which is displayed with most commands.

When the program JTAGEL4.EXE is started it scans the current directory for an existing initialization file named JTAGEL4.INI. If no entry is found the default values are used. You may also specify the initialization file with the option /INI= . If the specified file isn't found, the program aborts with an error message.

The CPU pins can also be used with the functions /BLINK (chapter 2.12) and /PIN? (chapter 2.13) to test the signals on your design.

The sample file below represents the values which are used for default initialization when no initialization file could be found in the current directory and no initialization file is specified with the option /INI=.

Changes to the structure of the file could result in errors. Remarks can be added by using //.

**Sample File JTAGEL4.INI:**

```
// Description file for AMD ÉlanSC400/ÉlanSC410
Target: Module FS FORTH-SYSTEME module ELAN486 on EVAELAN_2
// All chip select signals are set to output and inactive.
// All signals should be defined. Undefined signals are set to their defaults.
// Pin names are defined in upper case.
// Low active signals are signed with a trailing #.

// Group A: All pins in this group must be set to the same direction
GPIO21          Inp     // = PPDWE#
GPIO22          Inp     // = PPOEN#
GPIO23          Inp     // = SLCT       = WP_B#
GPIO24          Inp     // = BUSY       = BVD2_B#
GPIO25          Inp     // = ACK#       = BVD1_B#
GPIO26          Inp     // = PE         = RDY_B#
GPIO27          Inp     // = ERROR#     = CD_B#
GPIO28          Inp     // = INIT#      = REG_B#
GPIO29          Inp     // = SLCTIN#    = RST_B#
GPIO30          Inp     // = AFDT#      = MCEH_B#
GPIO31          Inp     // = STRB#      = MCEL_B#

// Group B: All pins in this group must be set to the same direction
SPKR            Out,Hi  //
RTS#            Out,Hi  //
SIROUT          Out,Lo  //
DTR#            Out,Hi  //
SOUT            Out,Lo  //
RSTDRV          Out,Lo  //                      -> may control reset of FLASH!!
BL0#            Out,Hi  // = CLK_IO
GPIO19          Out,Hi  // = LBL2#              -> VCC ->???
GPIO18          Out,Lo  // = VPP2_B
GPIO17          Out,Lo  // = VPP1_B

// Group C: All pins in this group must be set to the same direction
//          This group is switched to output/active during programming of
//          Flash-EPROMs. (signals ROMRD# and ROMWR#)
GPIO16          Out,Hi  // = VCC_B              -> VCC_B OFF
GPIO15          Out,Lo  // = VPP2_A             -> VPP2_A LOW
GPIO_CS14       Out,Lo  // = VPP1_A             -> VPP1_A LOW
GPIO_CS13       Out,Hi  // = VCC_A              -> VCC_A OFF
GPIO_CS12       Out,Hi  // = PDRQ0              -> !!!posible conflict!!!
GPIO_CS11       Out,Hi  // = PDACK0#
```

```
GPIO_CS10     Out,Lo   // = AEN
GPIO_CS9      Out,Lo   // = TC
GPIO_CS8      Out,Hi   // = PIRQ0                -> !!!posible conflict!!!
GPIO_CS7      Out,Hi   // = PIRQ1                -> !!!posible conflict!!!
GPIO_CS6      Out,Hi   // = IOCHRDY              -> !!!posible conflict!!!
GPIO_CS5      Out,Hi   // = IOCS16#              -> !!!posible conflict!!!
GPIO_CS1      Out,Hi   // = SCL
GPIO_CS0      Out,Hi   // = SDAT                 -> 8042CS#
MEMR#         Out,Hi
MEMW#         Out,Hi
ROMWR#        Out,Hi
ROMRD#        Out,Hi
ROMCS0#       Out,Hi
ROMCS1#       Out,Hi
IOR#          Out,Hi
IOW#          Out,Hi

// Group D: All pins in this group must be set to the same direction
//          For Flash programming these pins must be set to output.
SA0           Out,Lo
SA1           Out,Lo
SA2           Out,Lo
SA3           Out,Lo
SA4           Out,Lo
SA5           Out,Lo
SA6           Out,Lo
SA7           Out,Lo
SA8           Out,Lo
SA9           Out,Lo
SA10          Out,Lo
SA11          Out,Lo
SA12          Out,Lo
SA13          Out,Lo
SA14          Out,Lo
SA15          Out,Lo
SA16          Out,Lo
SA17          Out,Lo
SA18          Out,Lo
SA19          Out,Lo
SA20          Out,Lo
SA21          Out,Lo
SA22          Out,Lo
SA23          Out,Lo
```

```
SA24            Out,Lo
SA25            Out,Lo
GPIO20          Out,Lo    // = CD_A2#

// Group E: All pins in this group must be set to the same direction
//          This group is switched to output/active during programming of
//          Flash-EPROMs, as long as the option /NOBUFF isn't specified.
SCK             Out,Lo    // = VL_BE0#              -> CP2
LC              Out,Lo    // = VL_BE1#              -> CP1
M               Out,Lo    // = VL_BE2#              -> LCDM
FRM             Out,Lo    // = VL_LCLK#             -> FRM
LCDD7           Out,Lo    // = VL_BE3#              -> LCDDL3
LCDD6           Out,Lo    // = VL_LDEV#             -> LCDDL2
LCDD5           Out,Lo    // = VL_D_C               -> LCDDL1
LCDD4           Out,Lo    // = VL_LRDY#             -> LCDDL0
LCDD3           Out,Lo    // = VL_M_IO              -> LCDD3
LCDD2           Out,Lo    // = VL_W_R               -> LCDD2
LCDD1           Out,Lo    // = VL_ADS#              -> LCDD1
LCDD0           Out,Lo    // = VL_RST#              -> LCDD0
LVEE#           Out,Hi    // = VL_BRDY#             -> LVEE#
LVDD#           Out,Hi    // = VL_BLAST#            -> LVDD#
GPIO_CS3        Out,Hi    // = DBUFRDH#             -> set buffer to write
GPIO_CS2        Out,Hi    // = DBUFRDL#             -> set buffer to write
KBD_ROW0        Out,Hi    // = CASL2#
KBD_ROW1        Out,Hi    // = CASL3#
KBD_ROW2        Out,Hi    // = CASH2#
KBD_ROW3        Out,Hi    // = CASH3#
KBD_ROW4        Out,Hi    // = RAS2#
KBD_ROW5        Out,Hi    // = RAS3#
KBD_ROW6        Out,Hi    // = MA12

// Group F: All pins in this group must be set to the same direction
RAS1#           Out,Hi    //
RAS0#           Out,Hi
CASH1#          Out,Hi
CASH0#          Out,Hi
CASL1#          Out,Hi
CASL0#          Out,Hi
MA11            Out,Lo
MA10            Out,Lo
MA9             Out,Lo
MA8             Out,Lo
MA7             Out,Lo
```

```
MA6             Out,Lo
MA5             Out,Lo
MA4             Out,Lo    // = RESERVED
MA3             Out,Lo    // = CFG3
MA2             Out,Lo    // = CFG2
MA1             Out,Lo    // = CFG1
MA0             Out,Lo    // = CFG0
MWE#            Out,Hi

// Group G: All pins in this group must be set to the same direction
//          This group is switched between output/active and
//          input/tristate during programming of 32 Bit Flash-EPROMs
D0              Out,Lo
D1              Out,Lo
D2              Out,Lo
D3              Out,Lo
D4              Out,Lo
D5              Out,Lo
D6              Out,Lo
D7              Out,Lo
D8              Out,Lo
D9              Out,Lo
D10             Out,Lo
D11             Out,Lo
D12             Out,Lo
D13             Out,Lo
D14             Out,Lo
D15             Out,Lo
KBD_COL7        Out,Hi
GPIO_CS4        Out,Hi    // = DBUFOE#
KBD_ROW13       Out,Hi    // = R32BFOE#
KBD_COL2        Out,Hi    // = PIRQ3
KBD_COL3        Out,Hi    // = PIRQ4
KBD_COL4        Out,Hi    // = PIRQ5
KBD_COL5        Out,Hi    // = PIRQ6
KBD_COL6        Out,Hi    // = PIRQ7
```

```
// Group H: All pins in this group must be set to the same direction
//          This group is switched between output/active and
//          input/tristate during programming of Flash-EPROMs
KBD_ROW7    Out,Hi   // = PDACK1#
KBD_ROW8    Out,Hi   // = PDRQ1
KBD_ROW9    Out,Hi   // = PIRQ2
KBD_ROW10   Out,Lo   // = BALE
KBD_ROW11   Out,Hi   // = SBHE#
KBD_ROW12   Out,Hi   // = MCS16#
KBD_COL0    Out,Hi   // = XT_DATA              -> PC-Card
KBD_COL1    Out,Lo   // = XT_CLK               -> RESET# of 80C42
SD0         Out,Lo   // = D16
SD1         Out,Lo   // = D17
SD2         Out,Lo   // = D18
SD3         Out,Lo   // = D19
SD4         Out,Lo   // = D20
SD5         Out,Lo   // = D21
SD6         Out,Lo   // = D22
SD7         Out,Lo   // = D23
SD8         Out,Lo   // = D24
SD9          Out,Lo  // = D25
SD10        Out,Lo   // = D26
SD11        Out,Lo   // = D27
SD12        Out,Lo   // = D28
SD13        Out,Lo   // = D29
SD14        Out,Lo   // = D30
SD15        Out,Lo   // = D31
OE#         Out,Hi   //                        -> PCMOE#
WE#         Out,Hi   //                        -> PCMWR#
ICDIR       Out,Lo   //

// The following pins are input only.
// Setting to output of one of these pins results in an error.
// Declaration of the direction of these pins is optional.
CD_A#       Inp      //
RDY_A       Inp      //
WAIT_AB#    Inp      //
BVD2_A      Inp      //
BVD1_A      Inp      //
RESET#      Inp      //
DCD#        Inp      //
SIRIN       Inp      //
DSR#        Inp      //
```

| | | |
|---|---|---|
| CTS# | Inp | // |
| SIN | Inp | // |
| RIN | Inp | // |
| ACIN | Inp | // |
| SUS_RES | Inp | // |
| BL2# | Inp | // |
| BL1# | Inp | // |

## 1.9. Supported flash devices

Type JTAGEL4 /LIST [optionlist]

to get a online list of all flash types which could be used with the /DEVICE= option.

See separate file JTAG_V4xx_FLASHES.pdf to get a complete list of supported flash types.

## 2. JTAGEL4 Parameter Description

When you start JTAGEL4.EXE without any parameters the following help screen with all possible functions and options is displayed:

```
JTAGEL4 --- JTAG utility for AMD ÉlanSC400/ÉlanSC410
Copyright © FS FORTH-SYSTEME GmbH, Breisach
Version 4.xx of mm/dd/yyyy

Programming of Flash-EPROMs and hardware tests on targets with the
AMD ÉlanSC400/ÉlanSC410.

The JTAG-Booster is needed to connect the parallel port of the PC
to the JTAG port of the AMD ÉlanSC400/ÉlanSC410.

Usage: JTAGEL4 /function [filename] [/option_1] ... [/option_n]
Supported functions:
        /P          : Program a Flash Device
        /R          : Read a Flash Device to file
        /V          : Verify a Flash Device with file
        /D          : Download to target memory
        /U          : Upload from target to host
        /SRAM       : Test target memory (SRAM)
        /DUMP       : Make a target dump
        /PI2C       : Program an I2C Device with file
        /RI2C       : Read an I2C Device to file
        /VI2C       : Verify an I2C Device with file
        /DUMPI2C    : Make a dump of an I2C Device
        /BLINK      : Toggle a CPU pin
        /PIN?       : Test a CPU pin
        /LIST       : Print a list of supported Flash devices
```