



INDUSTRIAL COMPUTER SOURCE[®]

Model AV100 Software Guide Product Manual

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INDUSTRIAL COMPUTER SOURCE[®]

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FORWARD

This product manual provides information to install, operate and or program the referenced product(s) manufactured or distributed by Industrial Computer Source. The following pages contain information regarding the warranty and repair policies.

Technical assistance is available at: **1-800-480-0044**.

Manual Errors, Omissions and Bugs: A "Bug Sheet" is included as the last page of this manual. Please use the "Bug Sheet" if you experience any problems with the manual that requires correction.

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A thirty day money-back guarantee is provided on all **standard** products sold. **Special order products** are covered by our Limited Warranty, *however they may not be returned for refund or credit.*

Refunds

In order to receive a full refund on a product purchase price, the product must not have been damaged by the customer or by the common carrier chosen by the customer to return the goods, and the product must be returned complete (meaning all manuals, software, cables, etc.) within 30 days of receipt and in as-new and resalable condition. The **Return Procedure** must be followed to assure prompt refund.

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Product returned *after* 30 days, and *before* 90 days, of the purchase will be subject to a **minimum** 20% restocking charge and any charges for damaged or missing parts.

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Limited Warranty

One year limited warranty on all products sold with the exception of the "Performance Series" I/O products, which are warranted to the original purchaser, for as long as they own the product, subject to all other conditions below, including those regarding neglect, misuse and acts of God. Within one year of purchase, Industrial Computer Source will repair or replace, at our option, any defective product. At any time after one year, we will repair or replace, at our option, any defective "Performance Series" I/O product sold. This does not include products damaged in shipment, or damaged through customer neglect or misuse. Industrial Computer Source will service the warranty for all standard catalog products for the first year from the date of shipment. After the first year, for products not manufactured by Industrial Computer Source, the remainder of the manufacturer's warranty, if any, will be serviced by the manufacturer directly.

The **Return Procedure** must be followed to assure repair or replacement. Industrial Computer Source will normally return your replacement or repaired item via UPS Blue. *Overnight delivery or delivery via other carriers is available at additional charge.*

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Industrial Computer Source or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Industrial Computer Source or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the owners' manual.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Industrial Computer Source reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.



Shipments not in compliance with this Guarantee and Limited Warranty Return Policy will not be accepted by Industrial Computer Source.

Return Procedure

For any Limited Warranty or Guarantee return, please contact Industrial Computer Source's Customer Service at **1-800-480-0044** and obtain a Return Material Authorization (RMA) Number. All product(s) returned to Industrial Computer Source for service or credit **must** be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items **must** be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty **must** include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing date of purchase.

To reduce risk of damage, returns of product must be in an Industrial Computer Source shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Industrial Computer Source Customer Service at a nominal cost.

Limitation of Liability

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Some *Sales Items* and *Customized Systems* are **not** subject to the guarantee and limited warranty. However in these instances, any deviations will be disclosed prior to sales and noted in the original invoice. ***Industrial Computer Source reserves the right to refuse returns or credits on software or special order items.***

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Chapter 1: Introduction

The Avanstar Family Developer's Disk is intended to provide the developer with the necessary tools for successful driver development in the DOS environment. This package is not intended for development of control program software that will reside on the Avanstar family hardware itself. Contact Industrial Computer Source for assistance in developing board-resident software.

Chapter 2: Diskette Contents

The Avanstar Family Developer's Disk contains the following items:

- Control programs for all Avanstar family hardware
- A control program download utility (A100LOAD)
- A port configuration utility (A100CFG)
- Sample programs (with source code)
- Source code for the utility programs

All programs on the diskette were created using Microsoft C version 6.00A. Each program has its own MAKEFILE that is used to build the executable. To build a program, just type NMAKE at the DOS prompt.

Chapter 3: The A100LOAD Utility

The A100LOAD program is used to download control program software to any Avastar family adapter. A100LOAD is invoked from the DOS command prompt with command line arguments dependent upon the adapter that is being downloaded to.

A100LOAD for EISA Bus Adapters

The command line to download to an EISA bus adapter is as follows:

```
a100load e[off] [slot] [...]
```

where:

- **Slot:** is the EISA slot number where the EISA board to be downloaded is located. If slot is not specified, the proper control program will be downloaded to every Avastar family EISA bus adapter in the system. There can be more than one slot number on the command line.

If **e** is specified, the dual port(s) remain enabled after the download operation has completed. Specify **eoff** to disable the dual port(s) after the download.

A100LOAD for ISA Bus Adapters

The command line to download to an ISA bus adapter is as follows:

```
a100load i[off] [iobase [/Dpaddr] [/lirq]] [...]
```

- If **i** is specified, the dual port(s) remain enabled after the download operation has completed. Specify **ioff** to disable the dual port(s) after the download.
- **iobase** is the hexadecimal base I/O address that is assigned to the adapter to be downloaded. The valid base I/O addresses are 200, 208, 300, 308, 600, 700 and 708.
 1. Multiple sets of the **iobase** with optional **dpaddr** and **irq** parameters are allowed. For example:

```
a100load i 200/DD0000 208/15 300
```
 2. If **iobase** is not specified, the proper control program will be downloaded to every Avastar ISA bus adapter contained in the system.
- **dpaddr** is the address of local memory that is mapped to the dual port memory of the adapter to be downloaded. **dpaddr** may be at 16K byte boundaries like D0000, D4000, D8000, DC000, etc. The /D preceding the address value separates it from the other parameters.

1. You can not use the **dpaddr** parameter unless you first specify an **iobase**. For example:

a100load i /DD0000

is not valid

2. If no **dpaddr** is specified, the value currently programmed in the adapter's Control Register 2 will be used if it is not zero.
- **irq** is the IRQ number through which the adapter may interrupt the host. The valid IRQ numbers are 3,4,5,9,10,11,12 and 15. The /I preceding the IRQ number separates it from the other parameters.

1. You can not use the **irq** parameter unless you first specify an **iobase**. For example:

a100load i /15

is not valid

2. If no **irq** is specified, the value currently programmed in the adapter's Control Register 1 will be used if it is not zero.

Chapter 4: The A100CFG Utility

The A100CFG program is used to read or set optional parameters for any port on an Avastar family adapter. A100CFG is invoked from the DOS command prompt with command line arguments dependent upon the adapter that is being configured.

A100CFG for EISA bus Adapters

The command line for an EISA bus adapter is as follows:

```
a100cfg e slot port [param=x] [...]
```

where:

- **slot** is the EISA slot where the board is located.
- **port** is the number of the port to configure. The first port is number 1.
- **param** is a token representing the parameter to be set. If no parameter token is specified, current port settings are displayed. There can be more than one parameter token specified on the command line.

After the A100CFG program reads or configures port parameters, the dual port RAM is returned to the state it was in (enabled or disabled) before the program was executed.

A100CFG for ISA Bus Adapters

The command line for ISA bus adapters is as follows:

```
a100cfg i iobase port [param=x] [...]
```

where:

- **iobase** is the hexadecimal base I/O address that is assigned to the adapter to be downloaded. The valid base I/O addresses are 200,208,300,308,600,608,700 and 708. There can be only one **iobase** on the command line.
- **port** is the number of the port to configure. The first port is number 1.
- **param** is a token representing the parameter to be set. If no parameter token is specified, current port settings are displayed. There can be more than one parameter token specified on the command line.

After the A100CFG program reads or configures port parameters, the dual port RAM is returned to the state it was in (enabled or disabled) before the program was executed.

Parameter Tokens

Supported parameter tokens for the A100CFG program are:

- B (baud rate)
- D (data bits)
- F (flow control)
- I (input buffer size)
- O (output buffer size)
- P (parity)
- S (stop bits)

The A100CFG program parameters tokens are not case sensitive.

Baud Rates

The following baud rates may be set with the B token:

50	600	7200
75	1050	9600
110	1200	19200
134.5	1800	38400
150	2000	57600
200	2400	76800
300	4800	115200

For example, to set the baud rate to 9600 bits per second, the parameter **b=9600** would be included on the command line. To set the baud rate to 134.5, use **b=134** on the command line. See the Avastar Family Technical Reference Manual to determine possible baud rates for the particular Avastar family adapter in your system.

Data Bits

With the D token, data bits can be set to 5,6,7 or 8. For example, to set data bits to 5, the parameter **d=5** would be included on the command line.

Flow Control

With the F token, flow control can be set to X (xon/xoff), C (cts/rts), or N (none). It is valid to set X and C simultaneously (**f=XC**).

Input Buffer Size

With the l token, input buffer size can be set to anything from 2 to the maximum buffer size. For example, to set input buffer size to 2, the parameter **l=2** would be included on the command line. See the Avanstar Family Technical Reference Manual for details on buffer sizes for specific adapters.

Output Buffer size

With the 0 token, output buffer size can be set to anything from 2 to the maximum buffer size. For example, to set output buffer size to 2, the parameter **0=2** would be included on the command line. See the Avanstar Family Technical Reference Manual for details on buffer sizes for specific adapters.

Parity

With the P token, parity can be set to N (none), O (odd), E (even), M (mark), or S (space). For example, to set parity to even, the parameter **p-E** would be included on the command line.

Stop Bits

With the S token, stop bits can be set to 1 or 2. For example, to set stop bits to 2, the parameter **s=2** would be included on the command line.

Example

As an example, the command line:

```
a100cfg m 3 5 b=1200 f=xc
```

Configures port 5 of an Avanstar MCA adapter in slot 3 to 1200 bits per second and flow control of CTS/RTS and XON/XOFF.

Chapter 5: Sample Programs

The directory `\SOURCE\SAMPLES` contains sample programs with source code for examples of control program functionality.

Chapter 6: Source Code

All source code is contained under the directory \SOURCE. The directory \SOURCE\INCLUDE contains the A100.H include file. This file contains definitions of all control program structures. It also contains definitions of all configuration, control, and status values for the control programs. Using A100.H in your development will save much of the effort of creating of this information yourself. Using A100.H would also give you and our support staff a common basis for communication if you would need assistance during your product development.

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BUG REPORT

While we have tried to assure this manual is error free, it is a fact of life that works of man have errors. We request you to detail any errors you find on this BUG REPORT and return it to us. We will correct the errors/problems and send you a new manual as soon as available. Please return to:



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