

# **EBM-BYTSDBF**

16 COM port IET module Module

## **User's Manual**

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1<sup>st</sup> Ed – 18 July 2017

## **FCC Statement**



THIS DEVICE COMPLIES WITH PART 15 FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

- (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.
- (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES.

THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

## **Notice**

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Avalue, or which have been subject to misuse, abuse, accident or improper installation. Avalue assumes no liability under the terms of this warranty as a consequence of such events. Because of Avalue's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If any of Avalue's products is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details. If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU type and speed, Avalue's products model name, hardware & BIOS revision number, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information available.
3. If your product is diagnosed as defective, obtain an RMA (return material authorization) number from your dealer. This allows us to process your good return more quickly.
4. Carefully pack the defective product, a complete Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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# 1. Getting Started

## 1.1 Safety Precautions

### Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

### Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

## 1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x EBM-BYTSDBF 16 COM port IET module Module



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If any of the above items is damaged or missing, contact your retailer.

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### 1.3 Document Amendment History

Revision	Date	By	Comment
1 <sup>st</sup>	July 2017	Avalue	Initial Release

### 1.4 Manual Objectives

This manual describes in details Avalue Technology EBM-BYTSDBF Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EBM-BYTSDBF series or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

## 1.5 System Specifications

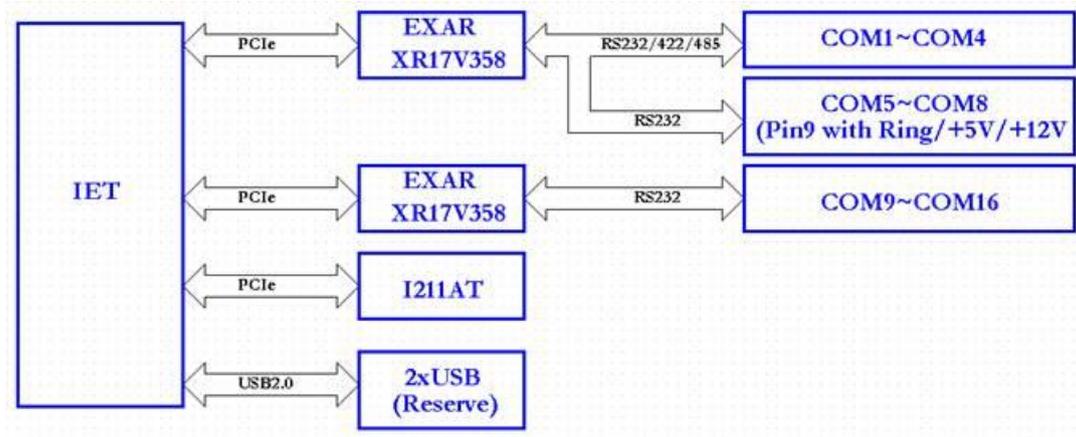
<b>I/O</b>	
<b>I/O Chip</b>	16 COM: (EXAR XR17V358)
<b>Ethernet</b>	
<b>LAN Chip</b>	1 x Intel I211AT GbE controller
<b>Ethernet Interface</b>	10/100/1000 Base-Tx compatible
<b>Internal I/O Connectors</b>	
<b>COM</b>	8 COM ( RS232 by wafer connector) 1port wafer x 1
<b>Rear I/O Connectors</b>	
<b>LAN</b>	1 x I211AT Giga LAN port (Factory Option)
<b>COM</b>	8 x DB-9 male connectors for eight serial ports (Isolation: No need) COM1 ~ 4: RS-232/422/485 selected by DIP switch; setting by jumper COM5 ~ 8: RS-232,DB9 COM5~8 support 5V/12V/Ring
<b>Mechanical &amp; Environmental</b>	
<b>Operating Temp.</b>	-10°C ~60°C
<b>Storage Temp.</b>	-40°C ~ 75°C
<b>Operating Humidity</b>	0% ~ 90% Relative Humidity, Non-condensing
<b>Size (L x W)</b>	203mm x 80mm



**Note:** Specifications are subject to change without notice.

## 1.6 Architecture Overview—Block Diagram

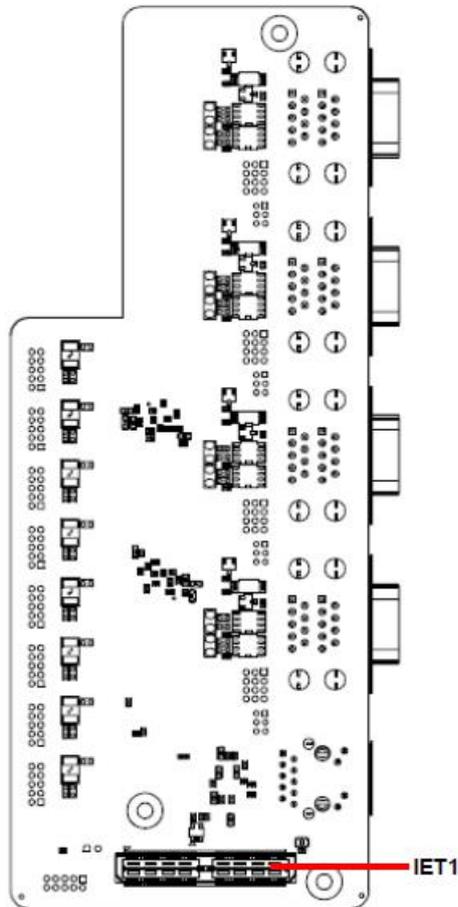
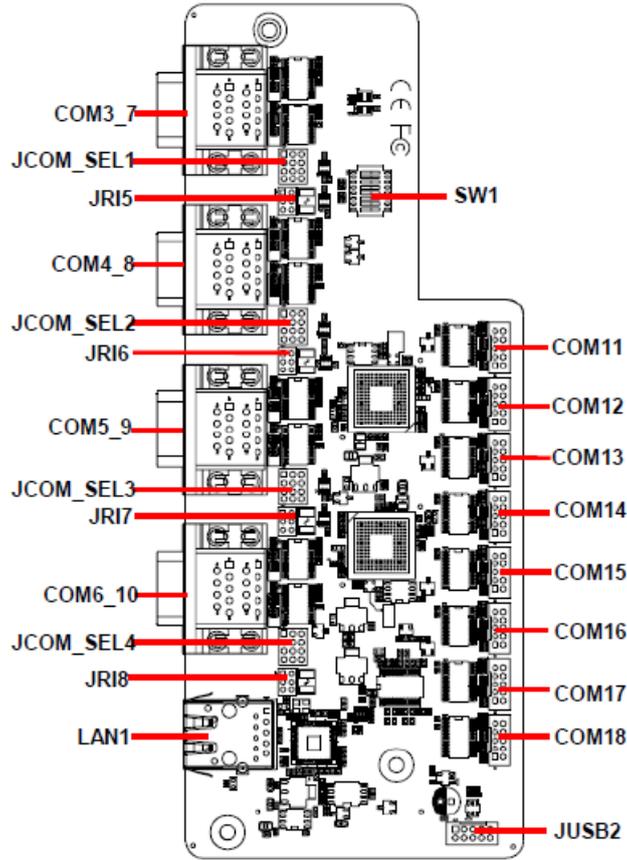
The following block diagram shows the architecture and main components of EBM-BYTSDBF.



# 2. Hardware Configuration

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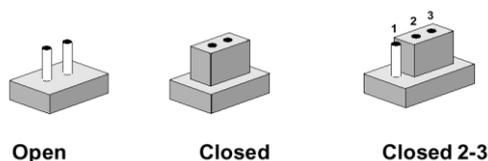
2.1 Product Overview



## 2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

### Jumpers

Label	Function	Note
SW1	Serial port 1/2/3/4 – RS232/422/485 mode select	DIP switch 8pin
JRI5/6/7/8	Serial port 5/6/7/8 pin9 signal select	3 x 2 header, pitch 2.00mm
JCOM_SEL1/2/3/4	Serial port 1/2/3/4 – RS232/422/485 mode select	4 x 3 header, pitch 2.00 mm

### Connectors

Label	Function	Note
COM3_7	Serial Port 3/7 connector	D-sub 9 pin, male
COM4_8	Serial Port 4/8 connector	D-sub 9 pin, male
COM5_9	Serial Port 5/9 connector	D-sub 9 pin, male
COM6_10	Serial Port 6/10 connector	D-sub 9 pin, male
JCOM11/12/13	Serial Port 11/12/13	5 x 2 wafer, pitch 2.00mm

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**/14/15/16/17/18** /14/15/16/17/18 connector

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**JUSB2** USB connector 5 x 2 wafer, pitch 2.00mm

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**LAN1** RJ-45 Ethernet

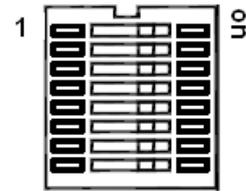
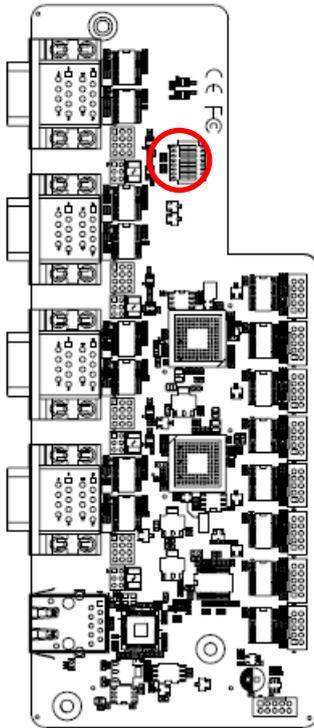
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**IET1** IET Expansion slot

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## 2.3 Setting Jumpers & Connectors

### 2.3.1 Serial port 1/2/3/4 – RS232/422/485 mode select (SW1)



#### In Serial Port 1 mode

	RS-232*	RS-422	RS-485
1	OFF	ON	ON
2	ON	OFF	ON

#### In Serial Port 2 mode

	RS-232*	RS-422	RS-485
3	OFF	ON	ON
4	ON	OFF	ON

#### In Serial Port 3 mode

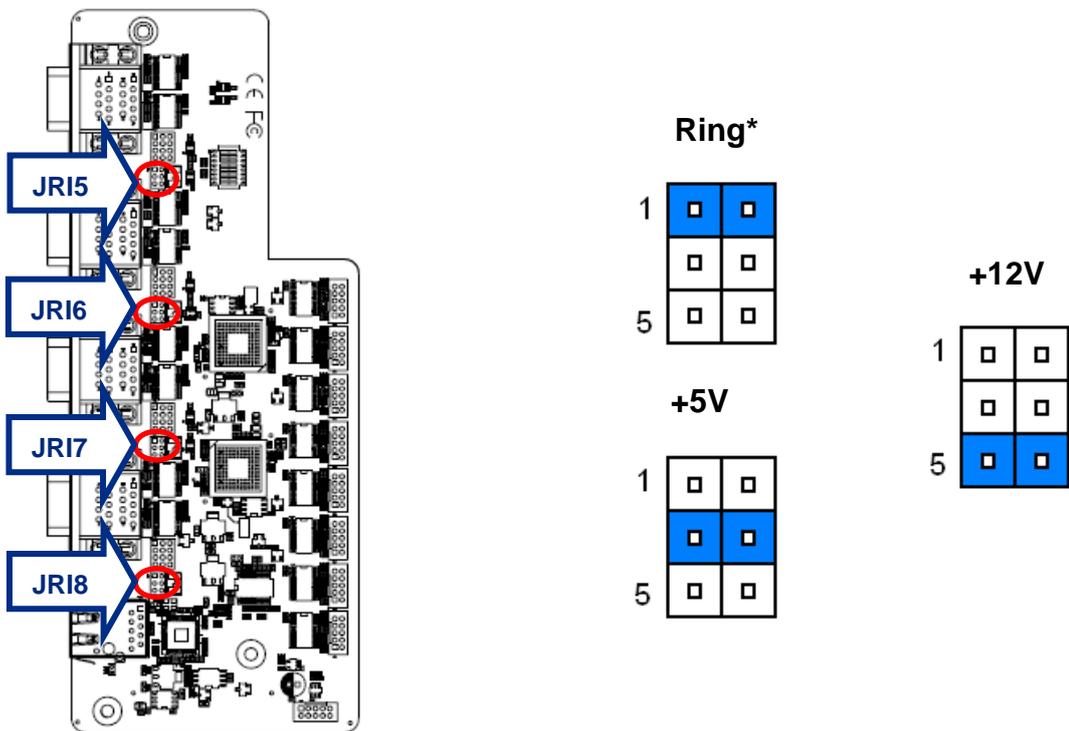
	RS-232*	RS-422	RS-485
5	OFF	ON	ON
6	ON	OFF	ON

#### In Serial Port 4 mode

	RS-232*	RS-422	RS-485
7	OFF	ON	ON
8	ON	OFF	ON

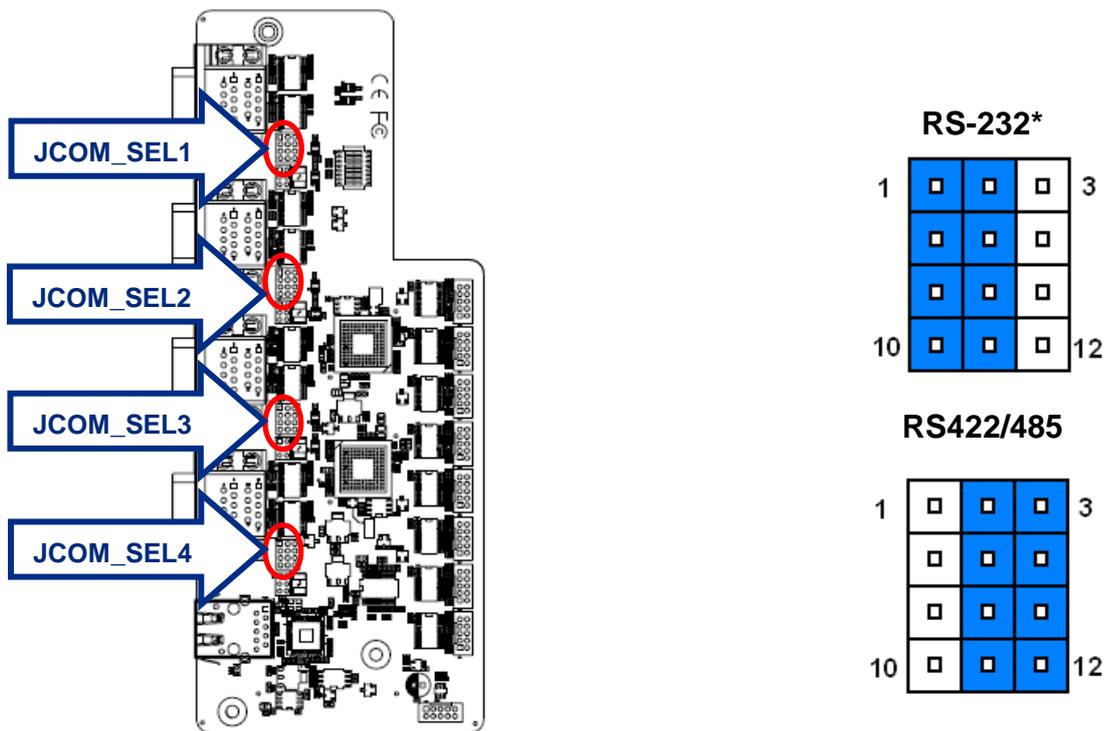
\* Default

2.3.2 Serial port 5/6/7/8 pin9 signal select (JRI5/6/7/8)



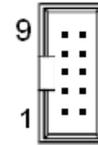
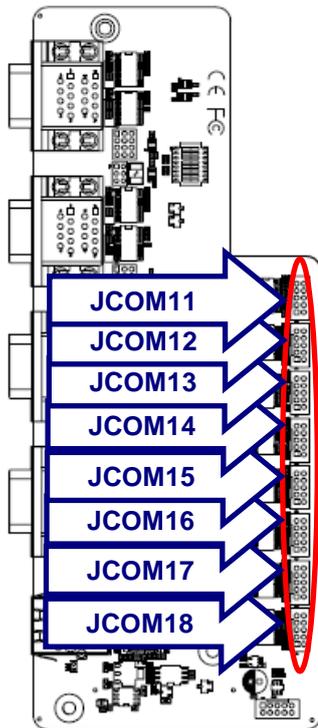
\* Default

2.3.3 Serial port 1/2/3/4 – RS232/422/485 mode select (JCOM\_SEL1/2/3/4)



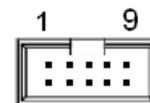
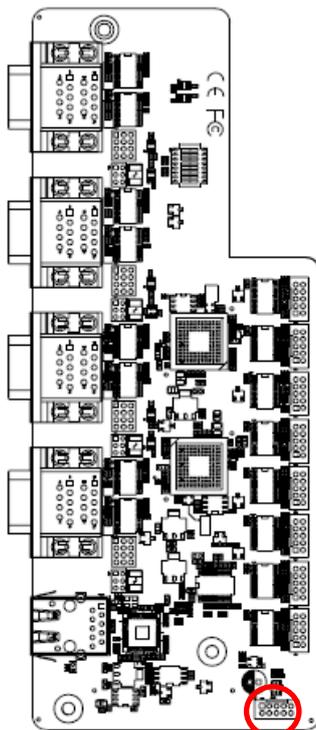
\* Default

2.3.4 Serial port 11/12/13/14/15/16/17/18 connector (JCOM11/12/13/14/15/16/17/18)



Signal	PIN	PIN	Signal
NRI#	9	10	NC
NRTS#	7	8	NCTS#
GND	5	6	NDSR#
NTXD	3	4	NDTR#
NDCD#	1	2	NRXD

2.3.5 USB connector (JUSB2)



Signal	PIN	PIN	Signal
+5VSB	1	2	+5VSB
USBN_R_P6	3	4	USBN_R_P5
USBP_R_P6	5	6	USBP_R_P5
GND	7	8	GND
GND	9	10	GND

# 3. Drivers Installation

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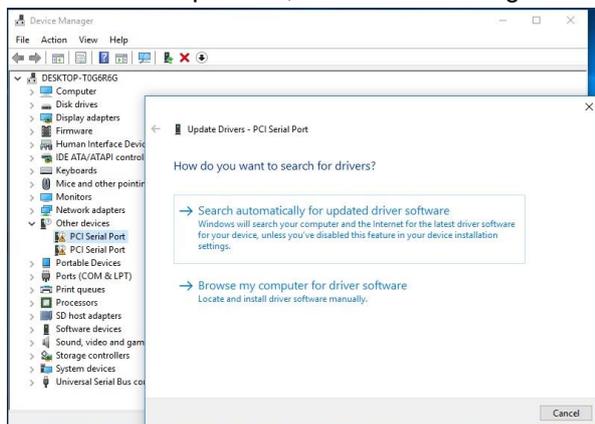
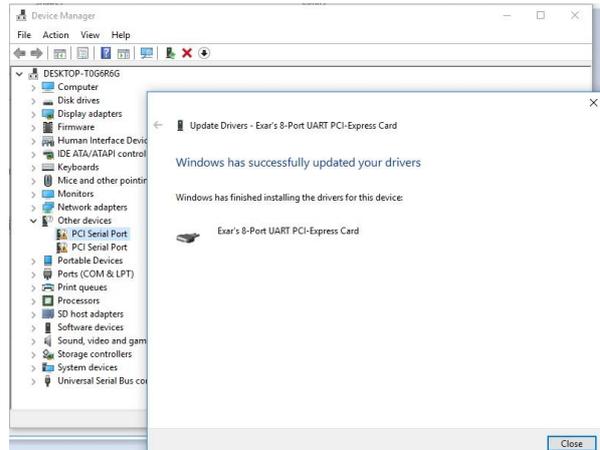
**Note:** Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

### 3.1 Install 16 COM Driver

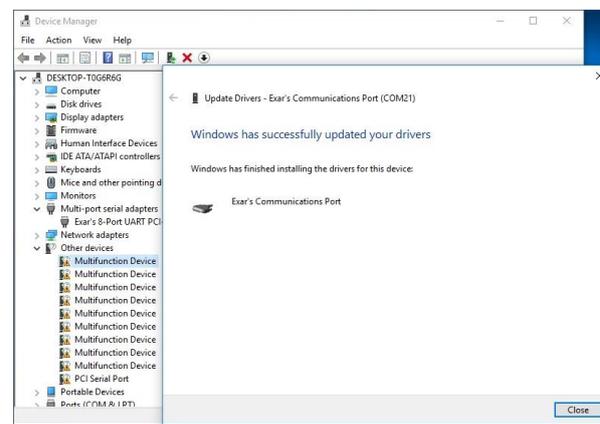
Insert the Supporting DVD-ROM to DVD-ROM drive, and it should show the index page of Avalue's products automatically. If not, locate Index.htm and choose the product from the menu left, or link to [/Utility/EBM-BYTSDBF\\_16COM](#).



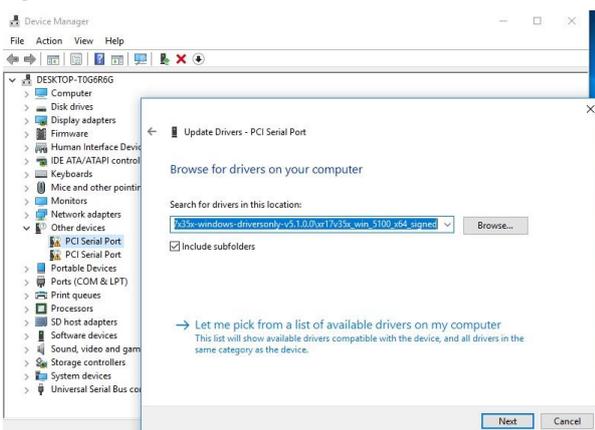
**Note:** The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.



**Step 1.** Click **Search automatically for updated driver software**.



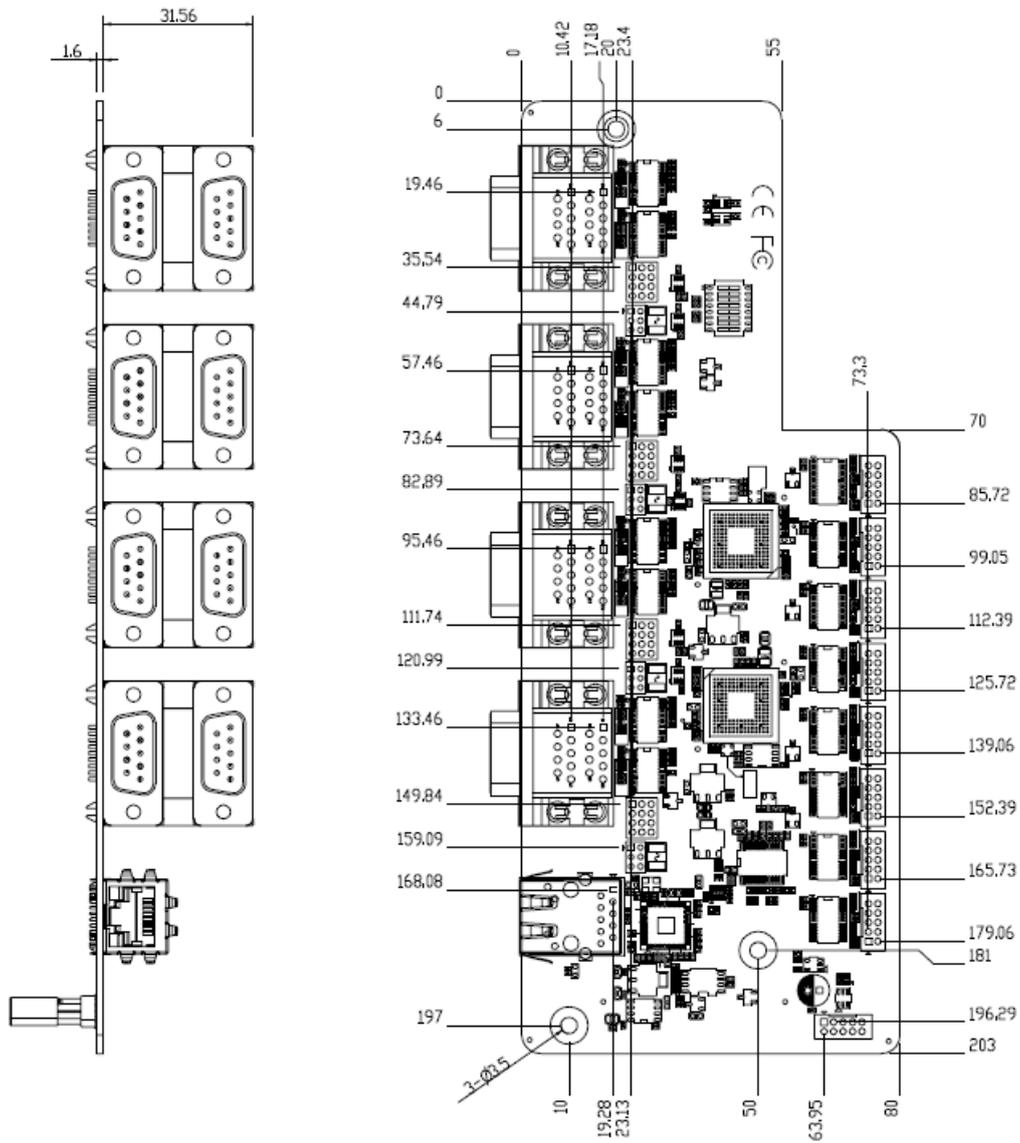
**Step 3.** Setup completed.



**Step 2.** Click **Next**.

# 4. Mechanical Drawing





Unit: mm

