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|---|---|
| **Related Products** | MOPS/520 (P489) |
| **Subject** | Adapting RS232 to TTL-COM-interface |
| **Document Name** | TTLtoRS232Adapt_E110.doc |
| **Usage** | Common |

## 1. REVISION HISTORY

| Date | Document Name | Subjects added, changed, deleted | Changed by |
|---|---|---|---|
| 10-Dec-02 | TTLtoRS232Adapt_E110.DOC | Initial release of Application Note | H. Bruhn |
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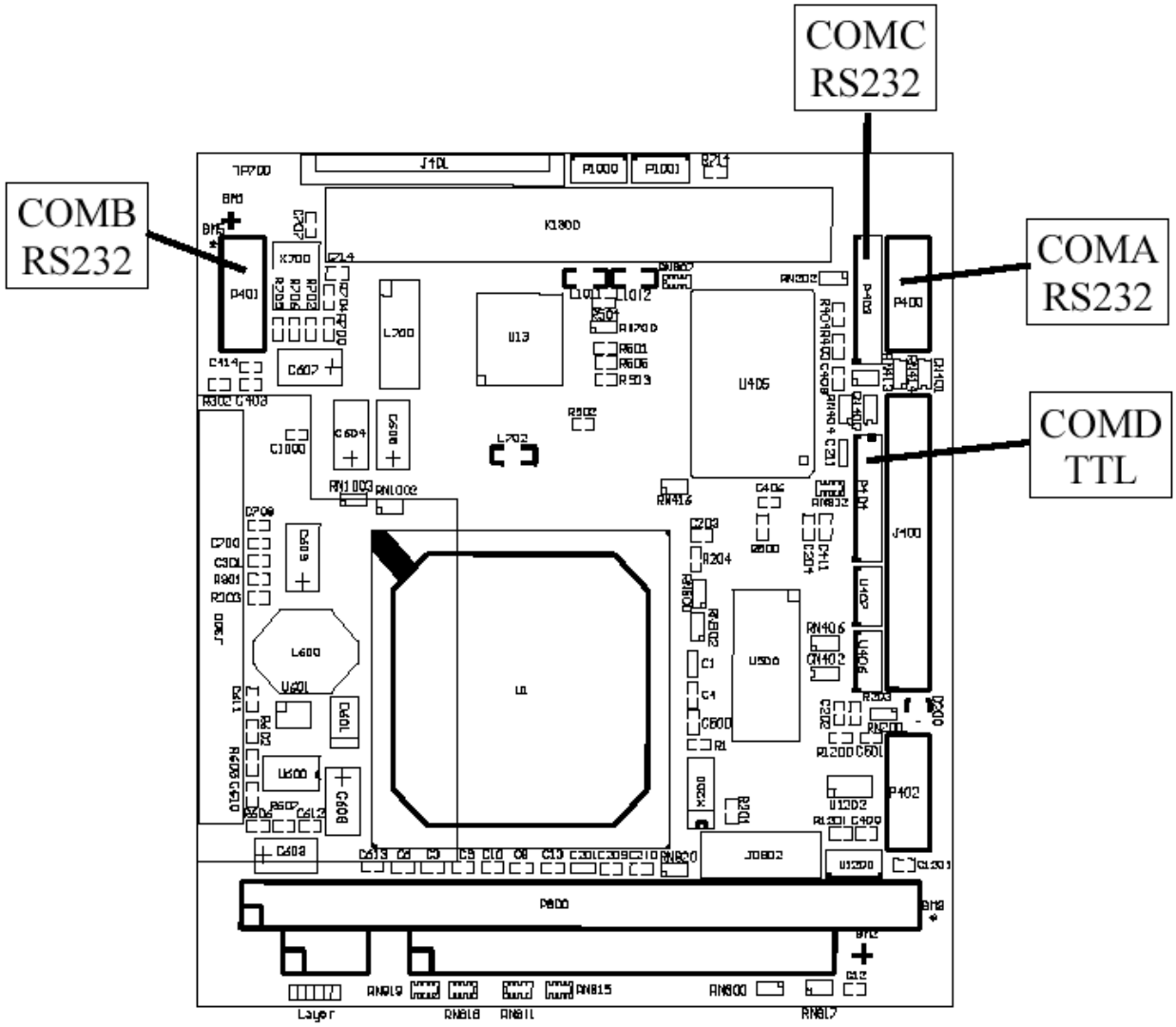
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## 3. INTRODUCTION

The PC/104 board MOPS/520 of **Kontron Embedded Modules GmbH** offers 4 serial interfaces. One of these 4 COMs is implemented as TTL signal level interface. Please look at the drawing below for the location of the corresponding connector on the board.




In some cases you want to use this forth COM with RS232 signaling, too. This will require your own design of a small PCB with the necessary RS232 transceivers which is connected to the onboard COMD connector. This onboard connector is a Molex 1.25mm pitch wire-to-board connector (order number: 53047-1010) with the following pin layout (pin 1 in drawing marked with a rectangle).

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | DCD | 6 | CTS |
| 2 | DSR | 7 | DTR |
| 3 | RXD | 8 | RI |
| 4 | RTS | 9 | GND |
| 5 | TXD | 10 | VCC |

# 4. SCHEMATIC OF RS232 CIRCUITRY

The schematic below shows an example how your own RS232 circuitry could look.

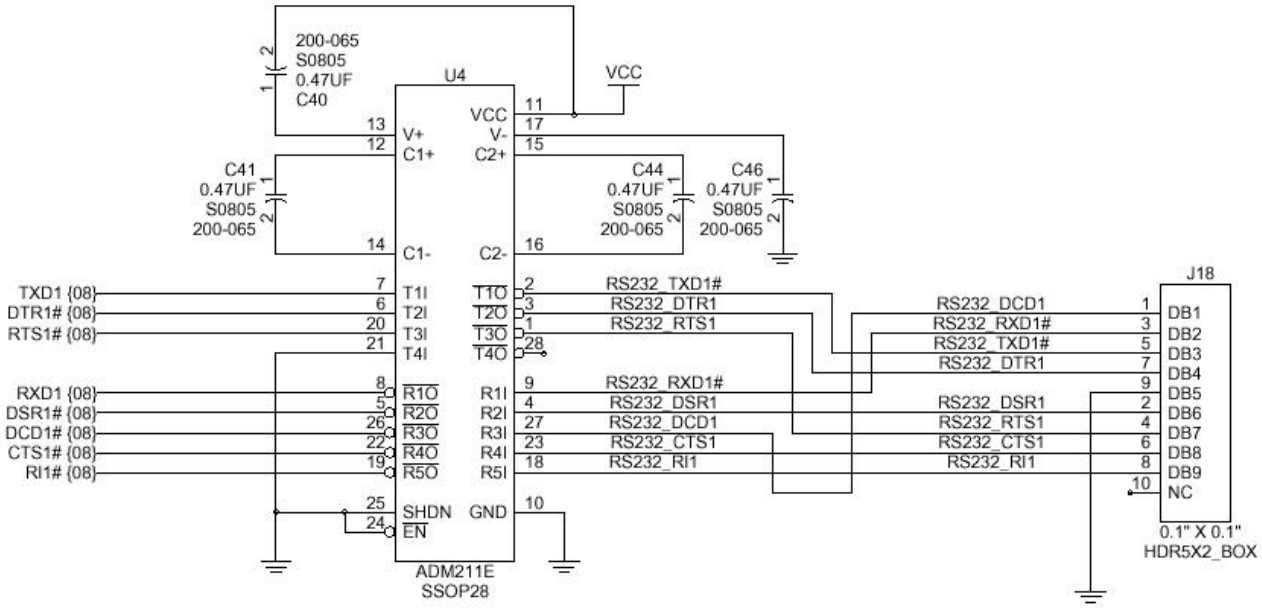



**Figure 1 (Schematic of RS232 with Kontron – 10pole serial connector)**

Please use an ADM211E, or compliant, because only the E-Variant has internal pull-ups.

# 5. USAGE WITHOUT RS232 TRANSCEIVERS

## 5.1. Usage of the TTL - Signals

If only the COM I/O-signals are used with TTL-Level (e.g. only RxD and TxD) then it's recommended to pull-up the rest of the I/O-signals.
If this is not done, the resulting floating signals may cause IRQs that slow down the system performance.

## 5.2. No Usage of the COM – Interfaces

If the COM-Interfaces are not being used, it is recommended to switch the COM port off in the system BIOS. If this is not done, the resulting floating signals may cause IRQs that slow down the system performance.