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| --- | --- |
| Module file structure |  |
|  | UART\_int.h |
|  | UART.c |
|  | UART\_Pcfg.h |
| Module dependencies |  |
|  | avr/interrupt.h |
|  | stdint.h |
|  | Bit\_Math.h |
|  | ATmega32\_Registers.h |

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| --- | --- | --- |
| Configuration | UART operation mode | |
| Name | UART\_u8POLLING\_BASED | UART\_u8POLLING\_BASED |
| Type | Macro | Macro |
| value | 0 | 1 |
| Configuration Type | Prebuild | prebuild |
| Description | These macros define whether the UART driver is going to be interrupt based or poling based driver.  We choose our UART driver to be interrupt based. | |

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| --- | --- |
| Name | Module\_pfNotify |
| Type | Pointer to function |
| Description | A pointer to function that takes void and returns void. This data type is used with the ISR to call a function from an upper layer whenever an interrupt is fired. |

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| --- | --- | --- | --- |
| Function name: | UART\_u8Init | | |
| Syntax: | uint8\_t UART\_vidInit**(**  void  **)** | | |
| Sync/Async | Synchronous | | |
| Reentrancy | Non-reentrant | | |
| Arguments: | Input | NA | |
|  | Output | NA | |
|  | Input/Output | NA | |
| Return |  | | |
|  | E\_OK | | 0 |
|  | E\_NOK | | 1 |
| Description |  | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Function name: | UART\_u8ReceiveData | | |
| Syntax | uint8\_t Uart\_u8ReceiveData**(**  uint8\_t **\*** Copy\_pu8RecData  **)** | | |
| Sync/Async | Synchronous | | |
| Reentrancy | Reentrant | | |
| Arguments: | Input | NA | |
|  | Output | Copy\_pu8RecData | Uint8\_t \* |
|  |  | A pointer that represents a container that will hold the data received from UART Rx buffer | |
|  |  |
|  | Input/Output | NA | |
| Return |  | | |
|  | E\_OK | 0 | |
|  | E\_NOK | 1 | |
| Description | This function is used to receive data from the UART buffer. The function is interrupt based, which means it will only be called to get the UART current value when a new UART frame arrives. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Function name: | UART\_u8SetCallBack | | |
| Syntax | uint8\_t UART\_vidSetCallBack**(**  App\_pfNotify ptrToFunction  **)** | | |
| Sync/Async | Synchronous | | |
| Reentrancy | Reentrant | | |
| Arguments: | Input | NA | |
|  | Output | ptrToFunction | **Module\_pfNotify** type |
|  | Input/Output | NA | |
| Return | E\_OK | 0 | |
|  | E\_NOK | 1 | |
| Description | This function is used by other modules to set a callback function from upper layers to be executed whenever a UART interrupt is fired. | | |