**FIFO Collection** - Quick Reference  
UVVM Support Component  
  
The FIFO Collection is a memory buffer that can be used to hold one or more FIFOs. Each FIFO will be allocated a chosen size and   
ID number. This allows a selectable number of FIFOs to operate individually and be independently accessed.

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| uvvm\_fifo\_init ( [buffer\_idx, ] buffer\_size\_in\_bits ) |
| Example: v\_buffer\_idx := uvvm\_fifo\_init(C\_BUFFER\_SIZE-1 ); -- returns a buffer index on initialization  Example: uvvm\_fifo\_init(C\_BUFFER\_IDX\_1, C\_BUFFER\_SIZE-1 ); -- buffer index is selected |
| uvvm\_fifo\_init ( [buffer\_idx, ] buffer\_size\_in\_bits ) |
| Example: v\_buffer\_idx := uvvm\_fifo\_init(C\_BUFFER\_SIZE-1 ); -- returns a buffer index on initialization  Example: uvvm\_fifo\_init(C\_BUFFER\_IDX\_1, C\_BUFFER\_SIZE-1 ); -- buffer index is selected |

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| [**uvvm\_fifo\_get**](#enable_log_msg) ( buffer\_idx, entry\_size\_in\_bits ) |
| Example: v\_rx\_data := uvvm\_fifo\_get (C\_BUFFER\_IDX\_1, C\_ENTRY\_SIZE\_1); |

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| [**uvvm\_fifo\_flush**](#fetch_result) ( buffer\_idx ) |
| Example: uvvm\_fifo\_flush(C\_BUFFER\_IDX\_1); |

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| [**uvvm\_fifo\_peek**](#insert_delay) ( buffer\_idx, entry\_size\_in\_bits ) |
| Example: v\_rx\_data := uvvm\_fifo\_peek(C\_BUFFER\_IDX\_1, C\_ENTRY\_SIZE\_1); |

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| [**uvvm\_fifo\_get\_count**](#terminate_currant_command) ( buffer\_idx ) |
| Example: v\_num\_elements := uvvm\_fifo\_get\_count(C\_BUFFER\_IDX\_1); |

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| [**uvvm\_fifo\_get\_max\_count**](#terminate_all_commands) ( buffer\_idx ) |
| Example: v\_max\_fifo\_elements := uvvm\_fifo\_get\_max\_count(C\_BUFFER\_IDX\_1); |

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| [**uvvm\_fifo\_is\_full**](#get_last_received_cmd_idx) ( buffer\_idx ) |
| Example: v\_fifo\_is\_full := uvvm\_fifo\_is\_full (C\_BUFFER\_IDX\_1); |

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| [**uvvm\_fifo\_**](#await_any_completion)**deallocate** ( VOID ) |
| Example: uvvm\_fifo\_deallocate(VOID); |



FIFO Collection – Functional parameters

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| **Name** | **Type** | **Example(s)** | **Description** |
| buffer\_idx | natural | 1 | The index of the FIFO that shall be initialized. |
| buffer\_size\_in\_bits | natural | 1024 | The size of the FIFO. |
| data | SLV | v\_rx\_data | The data that shall be pushed to the FIFO. |

FIFO Collection details

All FIFO functions and procedures are defined in the UVVM Data FIFO package, data\_fifo\_pkg.vhd

# FIFO Collection details and examples

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| **Method** | **Description** |
| **uvvm\_fifo init()** | **uvvm\_fifo\_init([buffer\_idx,] buffer\_size\_in\_bits)**  This UVVM FIFO call will allocate space in the FIFO buffer. If no buffer\_idx is given, the call will return a buffer index for use when addressing the FIFO. Note that 0 will be returned on error. If a buffer\_idx is given, the FIFO is initialized with this index.  Example:  uvvm\_fifo\_init(C\_BUFFER\_IDX\_1, C\_BUFFER\_SIZE-1); -- initialize buffer with index C\_BUFFER\_IDX\_1  v\_fifo\_idx := uvvm\_fifo\_init(C\_BUFFER\_SIZE-1); |
| **uvvm\_fifo\_put()** | **uvvm\_fifo\_put(buffer\_idx, data)**  This procedure puts data into a FIFO with index buffer\_idx. The size of the data is unconstrained, meaning that it can be any size. Pushing data with a size that is larger than the FIFO size results in wrapping, i.e., that when reaching the end that data remaining will overwrite the data that was first written.  Example:  uvvm\_fifo\_put(C\_BUFFER\_IDX\_1, v\_rx\_data); |
| **uvvm\_fifo\_get()** | **uvvm\_fifo\_get(buffer\_idx, entry\_size\_in\_bits)**  This function returns the data from the FIFO and removes the returned data from the FIFO.  Note that buffer\_idx is the index of the FIFO that shall be read, and that entry\_size\_in\_bits is the size of the returned data as SLV. Attempting to get data from an empty FIFO is allowed but triggers a TB\_WARNING and returns garbage data. Attempting to get a larger value than the FIFO size is allowed but triggers a TB\_WARNING.  Example:  v\_rx\_data := uvvm\_fifo\_get(C\_BUFFER\_IDX\_1, C\_ENTRY\_SIZE-1); |
| **uvvm\_fifo\_flush()** | **uvvm\_fifo\_flush(buffer\_idx)**  This procedure empties the FIFO given by buffer\_idx.  Example:  uvvm\_fifo\_flush(C\_BUFFER\_IDX\_1); |
| **uvvm\_fifo\_peek()** | **uvvm\_fifo\_peek(buffer\_idx, entry\_size\_in\_bits)**  This function returns the data from the FIFO without removing it.  Note that, apart from not removing the data, this function will behave in the same way as the uvvm\_fifo\_get() function.  Example:  v\_rx\_data := uvvm\_fifo\_peek(C\_BUFFER\_IDX\_1, C\_ENTRY\_SIZE-1); |
| **uvvm\_fifo\_get\_count()** | **uvvm\_fifo\_get\_count(buffer\_idx)**  This function returns a natural indicating the number of elements currently occupying the FIFO given by buffer\_idx.  Example:  v\_num\_elements := uvvm\_fifo\_get\_count(C\_BUFFER\_IDX); |
| **uvvm\_fifo\_get\_max\_count()** | **uvvm\_fifo\_get\_max\_count(buffer\_idx)**  This function returns a natural indicating the maximum number of elements that can occupy the FIFO given by buffer\_idx.  Example:  v\_max\_elements := uvvm\_fifo\_get\_max\_count(C\_BUFFER\_IDX); |
| **uvvm\_fifo\_is\_full()** | **uvvm\_fifo\_is\_full(buffer\_idx)**  This function returns a boolean indicating if the FIFO is full or not.  Example:  v\_fifo\_is\_full := uvvm\_fifo\_is\_full(C\_BUFFER\_IDX); |
| **uvvm\_fifo\_deallocate()** | **uvvm\_fifo\_deallocate(VOID)**  This function deallocates the FIFO buffer, all the FIFO pointers are reset.  Example:  uvvm\_fifo\_deallocate(VOID); |

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