1. Universal Definitions for the 16-bit Virtual Gameboy (GBVM) Library

File: `univ_defs.h`
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Date: January 2025

The `univ_defs.h` file provides core definitions essential for the functioning of the GBVM library. It ensures consistency and reusability of standard types and constants across the library, which simulates a 16-bit virtual machine.

1.1. Table of Contents

1.2. Included Libraries

The following standard C libraries are included in `univ_defs.h`:

- `assert.h`
- `ctype.h`
- `errno.h`
- `stdbool.h`
- `stdint.h`
- `stdio.h`
- `stdlib.h`
- `string.h`

1.3. Constants

This file defines several constants used for configuring the GBVM's operational limits:

Constant Name	Value	Description
`EXECUTION_LIMIT`	`1024`	The maximum number of instructions that can be executed in a single session.
`PROGRAM_CAPACITY`	`1024`	The maximum size of the program memory.

Constant Name	Value	Description
STACK_CAPACITY	1024	The maximum size of the stack memory.
MAX_WORD	32767	The maximum value that can be stored in a Word type.

1.3.1. Example Usage

```
if (instructionCount > EXECUTION_LIMIT) {
    printf("Error: Execution limit exceeded.\n");
    exit(1);
}
```

1.4. Type Definitions

The file introduces custom type definitions for the GBVM's memory and processing needs:

Type Name	Base Type	Description
Byte	char	Represents a single byte.
Word	short int	Represents a 16-bit signed word.
Double_Word	int	Represents a 32-bit signed double word.
Quad_Word	long long int	Represents a 64-bit signed quad word.

1.5. Notes

- The constants and types are designed to align with the 16-bit architecture of the virtual machine.
- All custom types (Byte, Word, etc.) rely on their corresponding standard C types to ensure portability and clarity.
- Always include univ_defs.h in files that require these constants or types.