UALf

User Application and Library File

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Introduction

The UALf is a type of file which identifies executable files and libraries in the ANC216 standard.

Definitions

This section contains all the definitions and abbreviations that can be found in the article.

- Byte: 8 bits.

- Bus: a computer communication system used to connect components and peripherals.

- CPU: Central Processing Unit, is the main processor in a computer.

- EEPROM: Electrically Erasable Programmable Read Only Memory.

- EINR: External Interrupt.

- EMEM: External Memory.

- HEX: Hexadecimal.

- INR: Interrupt.

- IO: Input/Output.

- RAM: Random Access Memory

- ROM: Read Only Memory.

- Word: 16 bits.

Header

Every UALf has an header containing meta data which describe the executable. The header is represented by the table below:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
U	A	L	Version	Entry point		Arch	Flags
Type	Header size		Symbol table... (optional)				

Where:

- Version is `0x01`.

- Entry point is the offset of the first instruction to run starting from the beginning of the file.

- Arch is the architecture: `0x00` for ANC16 (deprecated) and `0x01` for ANC216.

- Flags: the OS permissions flags

Video access	Audio access	Filesystem access	System privileges	0	0	0	0

- Type: `0x00` for user applications, `0x01` user libraries and `0x02` for symbol table only.

- Header size: the size of the entire header

Symbol table

The symbol table is used to associate an address with a symbolic name, the structure of the symbol table is the following:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
S	Y	M	B	O	L	0x00	Real...
...address	Offset address		...				

Where

- SYMBOL: is the symbol id (ending with 0x00).

- Real address (16-bits) the address of the symbol.

- Offset address (16-bits) the offset from the starting of the file.