Task 2

Opened: Wednesday, 24 April 2024, 12:00 AM
Due: Sunday, 19 May 2024, 11:59 PM

greens

implement in assembler a function called from C language with the following declaration:

```
nt64_t mdiv(int64_t *x, size_t n, int64_t y);
```

function performs integer division with remainder. The function treats the dividend, the herbarium, the quotient, and the remainder as numbers written in two's complement encoding. The first and second parameters of the function specify the dividend:xis a pointer to an empty arrayn64-bit numbers. The dividend has64 * nbits and is stored in the memory in fine-point order.*little endian*).The third parameterand is a divisor. The result of the function is the remainder of the divisionxByand. The function that contains the quotient in the tablex.

If the quotient cannot be written in the tablex, this means that there is an excess of English.*over*). A special case of overflow is division by zero. The function should react to overflow just like the commandsdivandidiv, i.e. report interrupt number 0. Handling this interrupt in Linux involves sending a signal to the processSIGFPEThe description of this signal, “floating point calculation error,” is somewhat misleading.

it can be assumed that the indicatorxis correct and thatnhas a positive value.

example of use

The example of use is part of the task content. In particular, from the example of use, it is necessary to deduce what are the relations between the signs of the dividend, divisor, quotient and remainder. The example of use can be found in the attached file below div_example.c. It can be compiled and linked to the solution by commands:

```
cc -c -Wall -Wextra -std=c17 -O2 -o mdiv_example.o mdiv_example.c cc -z noexecstack
-o mdiv_example mdiv_example.o mdiv.o
```

giving a solution

As a solution, you should insert a file calledmdiv.asm.

compiling

the solution will be compiled with the command:

```
asm -f elf64 -w+all -w+error -o mdiv.o mdiv.asm
```

The solution must compile in a computer lab.

appreciation

the price will consist of two parts.

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