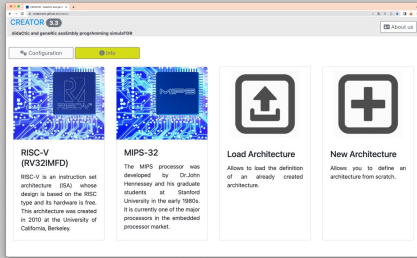


CREATOR: a tool for teaching assembly programming with RISC-V

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CREATOR

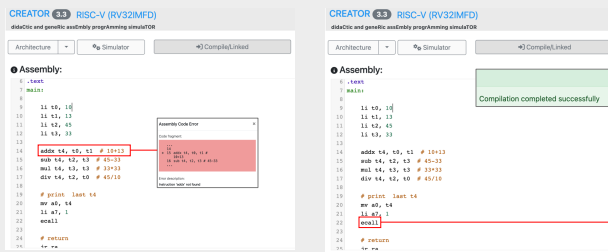


- Didactic simulator specially designed for students and teachers.
- Multiplatform:
 - It runs on a web browser without a server (desktops, tablets, and smartphones).
 - It also allows command line execution.
- Integrated environment for editing, compiling, executing, and debugging assembly programs.
- Support for creating teaching material, generates URLs with the programs created.
- Possibility to define and work with different architectures and assembly languages.
 - Currently: MIPS and RISC-V (RV32IMFD).
- Integration with ESP32-C3 microcontroller.

Edit and Compile

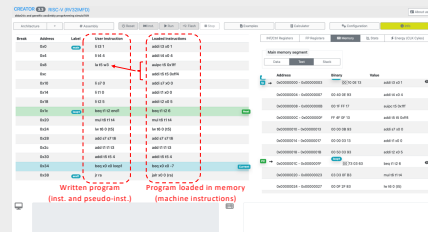


URL generation with examples for teaching materials

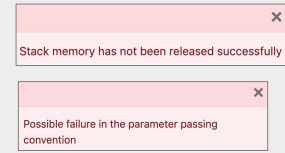


Service	Call Code (a7)	Arguments	Result
Print_int	1	a0 = integer	
Print_float	2	f0 = float	
Print_double	3	f0 = double	
Print_string	4	a0 = string addr	
Read_int	5		Integer in a0
Read_float	6		Float in f0
Read_double	7		Double in f0
Read_string	8	a0 = string addr a1 = length	
Sbrk	9	a0 = length a1 = Address	Address in a0
Exit	10		
Print_char	11	a0 = ASCII code	
Read_char	12		Char in a0

Run and Debug



- Program loaded in memory with easy visualization of labels.
- Execution flow knowing the current and next instruction at all times (useful in loops, branching instructions, and function calls).
- Parameter passing convention and stack usage with alerts when it is not followed



Details

Register view representation

Signed	Unsigned	IEEE 754	Hex
PC: 0x			
2891 a0 0e	0a 15 0e	00 12 00000000	00 12 0e
50 146 0a	00 10 0e	11 14 0e	12 14 0e
00 140 18 0a	01 10 0e	01 10 0e	12 14 0e
02 12 0e	01 10 0e	01 10 0e	12 14 0e
05 178 0a	07 17 0e	00 00 00 00	00 00 00 00
04 120 0a	05 10 0e	00 00 00 00	00 00 00 00
08 124 0a	09 12 0e	00 00 00 00	00 00 00 00
12 128 0a	14 12 0e	00 00 00 00	00 00 00 00

FP Registers

Address	Binary	Value
0x00200000 - 0x00200003	00 00 00 00	24
0x00200004 - 0x00200007	01 04 7a e1	18.56
0x00200008 - 0x0020000b	43 86 60 8c	H, A, L, I
0x0020000c - 0x0020000f	ef 00 00 00	0.0
0x00200010 - 0x00200013	20 2a e6 66	-13.45

Main memory segment

Address	Binary	Value
0x00fffffc - 0x00fffffd	00 00 00 00	00
0x00fffffe - 0x00ffffff	00 00 00 00	00
0x00ffff00 - 0x00ffff01	00 00 00 00	00
0x00ffff02 - 0x00ffff03	00 00 00 00	00
0x00ffff04 - 0x00ffff05	00 00 00 00	00
0x00ffff06 - 0x00ffff07	00 00 00 00	00
0x00ffff08 - 0x00ffff09	00 00 00 00	00
0x00ffff0a - 0x00ffff0b	00 00 00 00	00
0x00ffff0c - 0x00ffff0d	00 00 00 00	00
0x00ffff0e - 0x00ffff0f	00 00 00 00	00

Stats view

Graphic: 16 (Total)

- Arithmetic floating point - 0
- Arithmetic integer - 8
- Comparison - 0
- Conditional fabrication - 1
- Control - 0
- Function call - 0
- IO - 0
- Logic - 0
- Memory access - 5
- Other - 0

Integration with ESP32-C3 microcontroller

