64bit ALP to perform Multiplication with successive addition:

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|  |
| --- |
| %macro scall 4 |
|  |

|  |
| --- |
| mov rax,%1 |
|  |

|  |
| --- |
| mov rdi,%2 |
|  |

|  |
| --- |
| mov rsi,%3 |
|  |

|  |
| --- |
| mov rdx,%4 |
|  |

|  |
| --- |
| syscall |
|  |

|  |
| --- |
| %endmacro |
|  |

|  |
| --- |
| %macro exit 0 |
|  |

|  |
| --- |
| mov rax,60 |
|  |

|  |
| --- |
| mov rdi,0 |
|  |

|  |
| --- |
| syscall |
|  |

|  |
| --- |
| %endmacro |
|  |

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| --- |
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| --- |
| section .data |
|  |

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| --- |
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|  |
| --- |
| n1msg db 10,"Enter first Number=",10d,13d |
|  |

|  |
| --- |
| n1msg\_len equ $-n1msg |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| n2msg db 10,"Enter second Number=",10d,13d |
|  |

|  |
| --- |
| n2msg\_len equ $-n2msg |
|  |

|  |
| --- |
|  |
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|  |
| --- |
| samsg db 10,"Result of Successive Addition is =",10d,13d |
|  |

|  |
| --- |
| samsg\_len equ $-samsg |
|  |

|  |
| --- |
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| --- |
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| --- |
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| --- |
| section .bss |
|  |

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| --- |
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|  |
| --- |
| num resb 20 |
|  |

|  |
| --- |
|  |
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|  |
| --- |
| no1 resb 3 |
|  |

|  |
| --- |
| no2 resb 3 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| ansl resw 1 |
|  |

|  |
| --- |
| ansh resw 1 |
|  |

|  |
| --- |
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|  |
| --- |
| ans resd 1 |
|  |

|  |
| --- |
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|  |
| --- |
| char\_ans resb 4 |
|  |

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| --- |
| ;--------------------------- |
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| --- |
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| --- |
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| --- |
| section .text |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| global \_start |
|  |

|  |
| --- |
| \_start: |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| scall 1,1,n1msg,n1msg\_len |
|  |

|  |
| --- |
| scall 0,0,num,3 |
|  |

|  |
| --- |
| call accept\_proc |
|  |

|  |
| --- |
| mov [no1],bx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| scall 1,1,n2msg,n2msg\_len |
|  |

|  |
| --- |
| scall 0,0,num,3 |
|  |

|  |
| --- |
| call accept\_proc |
|  |

|  |
| --- |
| mov [no2],bx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| SA: |
|  |

|  |
| --- |
| mov rbx,[no1] |
|  |

|  |
| --- |
| mov rcx,[no2] |
|  |

|  |
| --- |
| xor rax,rax |
|  |

|  |
| --- |
| xor rdx,rdx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| back: add rax,rbx |
|  |

|  |
| --- |
| jnc next |
|  |

|  |
| --- |
| inc rdx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| next: dec rcx |
|  |

|  |
| --- |
| jnz back |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| mov [ansl],rax |
|  |

|  |
| --- |
| mov [ansh],rdx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| scall 1,1,samsg,samsg\_len |
|  |

|  |
| --- |
| mov ax,[ansh] |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| call display\_16 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| mov ax,[ansl] |
|  |

|  |
| --- |
| call display\_16 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| exit |
|  |

|  |
| --- |
| ;--------------------------- |
|  |

|  |
| --- |
| accept\_proc: |
|  |

|  |
| --- |
| mov rsi,num |
|  |

|  |
| --- |
| mov rbx,0 |
|  |

|  |
| --- |
| mov rax,0 |
|  |

|  |
| --- |
| mov rcx,2 |
|  |

|  |
| --- |
| back1: |
|  |

|  |
| --- |
| rol rbx,04 |
|  |

|  |
| --- |
| mov al,[rsi] |
|  |

|  |
| --- |
| cmp al,39h |
|  |

|  |
| --- |
| jbe next1 |
|  |

|  |
| --- |
| sub al,07h |
|  |

|  |
| --- |
| next1: |
|  |

|  |
| --- |
| sub al,30h |
|  |

|  |
| --- |
| add bx,ax |
|  |

|  |
| --- |
| inc rsi |
|  |

|  |
| --- |
| dec rcx |
|  |

|  |
| --- |
| jnz back1 |
|  |

|  |
| --- |
| ret |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| ;----------------------------- |
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|  |
| --- |
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|  |
| --- |
| display\_16: |
|  |

|  |
| --- |
| mov rsi,char\_ans+3 |
|  |

|  |
| --- |
| mov rcx,4 |
|  |

|  |
| --- |
| cnt: |
|  |

|  |
| --- |
| mov rdx,0 |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| mov rbx,16 |
|  |

|  |
| --- |
| div rbx |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| cmp dl,09h |
|  |

|  |
| --- |
| jbe L2 |
|  |

|  |
| --- |
| add dl,07h |
|  |

|  |
| --- |
| L2: add dl,30h |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| mov [rsi],dl |
|  |

|  |
| --- |
| dec rsi |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| dec rcx |
|  |

|  |
| --- |
| jnz cnt |
|  |

|  |
| --- |
|  |
|  |

|  |
| --- |
| scall 1,1,char\_ans,4 |
|  |

|  |
| --- |
| ret |
|  |

;-------------------

