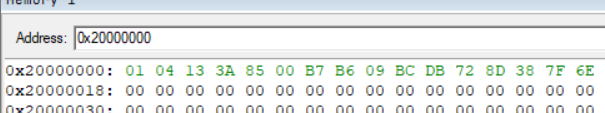
Вариант 4

|  |  |  |  |
| --- | --- | --- | --- |
| Команда | NZCV | Действие | Результат |
| pp1 | 0000 |  |  |
| mov r0, #0x20000000 | 0000 | r0 := 0x20000000 | r0 = 0x20000000 |
| ldr r1, = 0x20000010 | 0000 | r1 := 0x20000010 | r1 = 0x20000010 |
| mov r2, #16 | 0000 | r2 := 16 | r2 = 0x10 |
| mov r3, #0 | 0000 | r3 := 0 | r3 = 0 |
| mov r4, #7 | 0000 | r4 := 7 | r4 = 7 |
| mov r5, #9 | 0000 | r5 := 9 | r5 = 9 |
| m1  strb r4, [r0], #1 | 0000 | M(r0) := r4  r0 += 1 | M(0x20000000) = 0x07  r0 = 0x20000001 |
| strb r5, [r1], #1 | 0000 | M(r1) := r5  r1 += 1 | M(0x20000010) = 0x09  r1 = 0x20000011 |
| add r3, #1 | 0000 | r3 +=1 | r3 = 1 |
| add r4, #5 | 0000 | r4 +=5 | r4 = 0xC |
| mov r5, r3 | 0000 | r5 := r3 | r5 = 0x1 |
| add r5, #-3 | 0000 | r5 -= 3 | r5 = 0xff ff ff fe |
| mul r5, r5 | 0000 | r5 \*= r5 | r5 = 0x4 |
| subs r2, #1 | 0000 | r2 -= 1 | r2 = 0xF |
| bne m1 | 0000 |  |  |
| m1  strb r4, [r0], #1 | 0000 | M(r0) := r4  r0 += 1 | M(0x20000001) = 0x0C  r0 = 0x20000002 |
| strb r5, [r1], #1 | 0000 | M(r1) := r5  r1 += 1 | M(0x20000011) = 0x04  r1 = 0x20000012 |
| add r3, #1 | 0000 | r3 +=1 | r3 = 2 |
| add r4, #5 | 0000 | r4 +=5 | r4 = 0x11 |
| mov r5, r3 | 0000 | r5 := r3 | r5 = 0x2 |
| add r5, #-3 | 0000 | r5 -= 3 | r5 = 0xff ff ff ff |
| mul r5, r5 | 0000 | r5 \*= r5 | r5 = 0x1 |
| subs r2, #1 | 0000 | r2 -= 1 | r2 = 0xE |
| bne m1 | 0000 |  |  |
| … | … | … | … |
| m1  strb r4, [r0], #1 | 0000 | M(r0) := r4  r0 += 1 | M(0x2000000F) = 0x52  r0 = 0x20000010 |
| strb r5, [r1], #1 | 0000 | M(r1) := r5  r1 += 1 | M(0x2000001F) = 0x90  r1 = 0x20000020 |
| add r3, #1 | 0000 | r3 +=1 | r3 = 0x10 |
| add r4, #5 | 0000 | r4 +=5 | r4 = 0x57 |
| mov r5, r3 | 0000 | r5 := r3 | r5 = 0x10 |
| add r5, #-3 | 0000 | r5 -= 3 | r5 = 0x0D |
| mul r5, r5 | 0000 | r5 \*= r5 | r5 = 0xAE |
| subs r2, #1 | 0100 | r2 -= 1 | r2 = 0 |
| bne m1 | 0100 |  |  |
| bx lr |  |  |  |
| pp2 |  |  |  |
| ldr r1, = 0x20000020 | 0000 | r1 := 0x20000020 | r1 = 0x20000020 |
| mov r2, #16 | 0000 | r2 := 16 | r2 := 0xF |
| mov r4, #1 | 0000 | r4 := 1 | r4 = 1 |
| mov r5, #1 | 0000 | r5 := 1 | r5 = 1 |
| strb r4, [r1], #1 | 0000 | M(r1) := r4  r1 += 1 | M(0x20000020) = 0x01  r1 = 0x20000021 |
| strb r5, [r1], #1 | 0000 | M(r1) := r5  r1 += 1 | M(0x20000021) = 0x01  r1 = 0x20000022 |
| m2 add r4, r5 | 0000 | r4 += r5 | r4 = 2 |
| strb r4, [r1], #1 | 0000 | M(r1) := r4  r1 += 1 | M(0x20000022) = 0x02  r1 = 0x20000023 |
| add r5, r4 | 0000 | r5 += r4 | r5 = 3 |
| strb r5, [r1],#1 | 0000 | M(r1) := r5  r1 += 1 | M(0x20000023) = 3  r1 = 0x20000024 |
| subs r2, #2 | 0000 | r2 -= 2 | r2 = 0xE |
| bpl m2 | 0000 |  |  |
| … | … | … | … |
| m2 add r4, r5 | 0000 | r4 += r5 | r4 = 0x1055 |
| strb r4, [r1], #1 | 0000 | M(r1) := r4  r1 += 1 | M(0x20000032) = 0x55 (85)  r1 = 0x20000033 |
| add r5, r4 | 0000 | r5 += r4 | r5 = 0x1A6D |
| strb r5, [r1],#1 | 0000 | M(r1) := r5  r1 += 1 | M(0x20000033) = 0x6D (109)  r1 = 0x20000034 |
| subs r2, #2 | 1000 | r2 -= 2 | r2 = 0xFF FF FF FE |
| bpl m2 | 1000 |  |  |
| pp3 |  |  |  |
| mov r0, #0x20000000 | 0000 | r0 := 0x20000000 | r0 = 0x20000000 |
| mov r1, #32 | 0000 | r1 := 32 | r1 = 0x20 |
| mov r2, #0 | 0000 | r2 := 32 | r2 = 0 |
| mov r3, #0 | 0000 | r3 := 32 | r3 = 0 |
| m3 ldrb r5, [r0],#1 | 0000 | r5 = M(r0)  r0 += 1 | r5 = 7  r0 = 0x20000001 |
| cmps r5, #20 | 1000 | r5 - 20 | - |
| addls r2, #1 | 1000 | r2 += 1 | r2 = 1 |
| cmps r5, #40 | 1000 | r5 – 40 | - |
| addls r3, #1 | 1000 | r3 += 1 | r3 = 1 |
| subs r1, #1 | 0010 | r1-- | r1 = 0x1f |
| bpl m3 |  |  |  |
| … | … | … | … |
| m3 ldrb r5, [r0],#1 | 0000 | r5 = M(r0)  r0 += 1 | r5 = 0  r0 = 0x20000021 |
| cmps r5, #20 | 1000 | r5 - 20 | - |
| addls r2, #1 | 1000 | r2 += 1 | r2 = 0xC |
| cmps r5, #40 | 1000 | r5 – 40 | - |
| addls r3, #1 | 1000 | r3 += 1 | r3 = 0x12 |
| subs r1, #1 | 1000 | r1-- | r1 = 0xFFFFFF |
| bpl m3 |  |  |  |
| sub r4, r3, r2 | 1000 | r4 = r3 – r2 | r4 = 0x6 |
| strb r2, [r0],#1 | 1000 | M(r0) := r2  r0 += 1 | M(0x20000021) = 0xC  r0 = 0x20000022 |
| strb r3, [r0],#1 | 1000 | M(r0) := r2  r0 += 1 | M(0x20000022) = 0x12  r0 = 0x20000023 |
| strb r4, [r0],#1 | 1000 | M(r0) := r4  r0 += 1 | M(0x20000023) = 0x6  r0 = 0x20000024 |
| bx lr |  |  |  |





Массив который получился ^

2) Второе задание

|  |  |  |  |
| --- | --- | --- | --- |
| Команда | NZCV | Действие | Результат |
| pp4 | 0000 |  |  |
| mov r0, #0x20000000 | 0000 | r0 := 0x20000000 | r0 = 0x20000000 |
| mov r1, #0 ;counter | 0000 | r1 := 0 | r1 = 0 |
| m4 |  |  |  |
| mul r2, r1,r1 ;n^2 | 0000 | r2 := r1\*r1 | r2 = 0 |
| mul r2,r1 ;n^3 | 0000 | r2 := r2 \* r1 | r2 = 0 |
| lsl r2, #1 ;2\*n^2 | 0000 | r2 \*= 2 | r2 = 0 |
| add r2, r1 ; 2\*n^2 + n | 0000 | r2 += r1 | r2 = 0 |
| add r2, #1 | 0000 | r2 += 1 | r2 = 1 |
| strb r2, [r0], #1 | 0000 | M(r0) := r4  r0 += 1 | M(0x20000000) = 0x1  r0 = 0x20000001 |
| add r1, #1 | 0000 | r1 += 1 | r1 = 1 |
| cmps r1, #16 | 1000 | r1 - 16 | - |
| bmi m4 | 1000 |  |  |
| … | … | … | … |
| m4 |  |  |  |
| mul r2, r1,r1 ;n^2 | 0000 | r2 := r1\*r1 | r2 = 0xE1 |
| mul r2,r1 ;n^3 | 0000 | r2 := r2 \* r1 | r2 = 0xD2F |
| lsl r2, #1 ;2\*n^2 | 0000 | r2 \*= 2 | r2 = 0x1A5E |
| add r2, r1 ; 2\*n^2 + n | 0000 | r2 += r1 | r2 = 0x157D |
| add r2, #1 | 0000 | r2 += 1 | r2 = 0x157E |
| strb r2, [r0], #1 | 0000 | M(r0) := r4  r0 += 1 | M(0x2000000F) = 0x6E  r0 = 0x20000010 |
| add r1, #1 | 0000 | r1 += 1 | r1 = 10 |
| cmps r1, #16 | 0110 | r1 - 16 | - |
| bmi m4 |  |  |  |
| bx lr |  |  |  |
| pp5 |  |  |  |
| mov r0, #0x20000000 | 0000 | r0 := 0x20000000 | r0 = 0x20000000 |
| mov r1, #0 ;counter | 0000 | r1 := 0 | r1 = 0 |
| m5 |  |  |  |
| ldrb r5, [r0],#1 | 0000 | r5:= M(0x20000000)  r0 += 1 | r5 = 1  r0 = 0x20000001 |
| add r3, r5 | 0000 | r3 += r5 | r3 = 1 |
| add r1, #1 | 0000 | r1 += 1 | r1 = 1 |
| cmps r1, #16 | 1000 | r1 - 16 | - |
| bmi m5 | 1000 |  |  |
| … | … | … | … |
| m5 |  |  |  |
| ldrb r5, [r0],#1 | 1000 | r5:= M(0x2000000F)  r0 += 1 | r5 = 0x6E  r1 = 0x20000010 |
| add r3, r5 | 1000 | r3 += r5 | r3 = 0x608 (1544) |
| add r1, #1 | 1000 | r1 += 1 | r1 = 0xF |
| cmps r1, #16 | 0110 | r1 - 16 | - |
| bmi m5 | 0110 |  |  |
| lsr r3, #4 | 0110 | r3 /= 2^4 | r3 = 0x60(96) |
| strb r3, [r0] | 0110 | M(0x20000010) := r3 | M(0x20000010) = 96 |
| bx lr |  |  |  |
| pp6  mov r0, #0x20000000 | 1000 | r0 := 0x20000000 | r0 = 0x20000000 |
| mov r1, #0 | 1000 | r1 := 0 | r1 = 0 |
| m6 |  |  |  |
| cmps r1, #16 | 1000 | r1 - 16 | - |
| bgt m7 | 1000 |  |  |
| ldrb r5, [r0],#1 | 1000 | r5:= M(0x20000000)  r0 += 1 | r5 = 1  r0 = 0x20000001 |
| add r1, #1 | 1000 | r1 += 1 | r1 = 1 |
| cmp r5, #0x40 | 1000 | r5 – 0x40 | - |
| bls m6 | 1000 |  |  |
| … |  |  |  |
| m6 |  |  |  |
| cmps r1, #16 | 1000 | 0xF - 16 | - |
| bgt m7 | 1000 |  |  |
| ldrb r5, [r0],#1 | 1000 | r5:= M(0x2000000F)  r0 += 1 | r5 = 0x6E  r1 = 0x20000010 |
| add r1, #1 | 1000 | r1 += 1 | r1 = 0x10 |
| cmp r5, #0x40 | 0010 | 0x69 – 0x40 |  |
| bls m6 | 0010 |  |  |
| cmp r5, #0x7f | 1000 | 0x69 – 0x7F |  |
| bgt m6 | 1000 |  |  |
| add r3, #1 | 1000 | r3 += 1 | r3 = 3 |
| b m6 |  |  |  |
| cmps r1, #16 | 0110 | r1 - 16 | - |
| bgt m7 | 0110 |  |  |
| m7  strb r3, [r0] | 0110 | M(0x20000010) := r3 | M(0x20000010) = 3 |
| bx lr |  |  |  |