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How to use Compiler Explorer to make easier auto-vectorization

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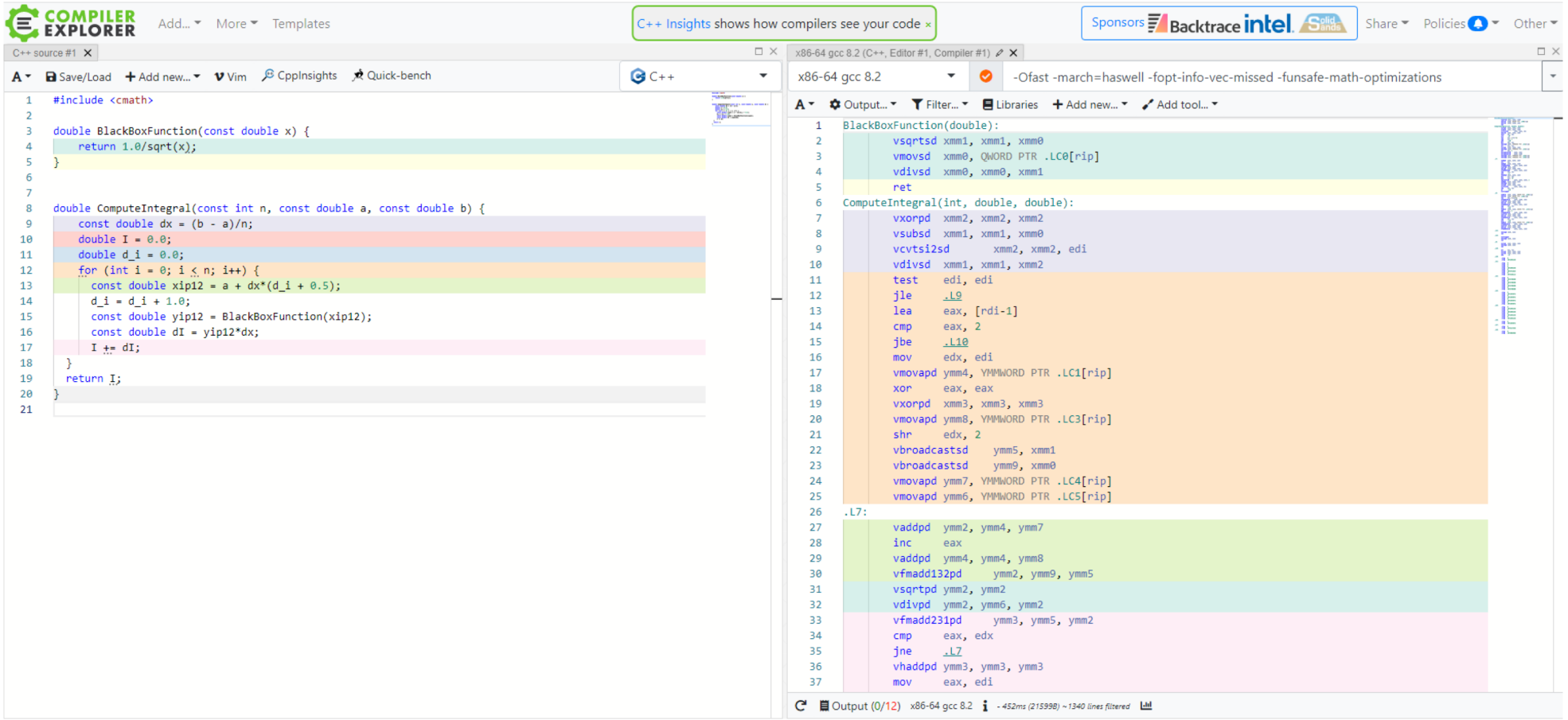
Link

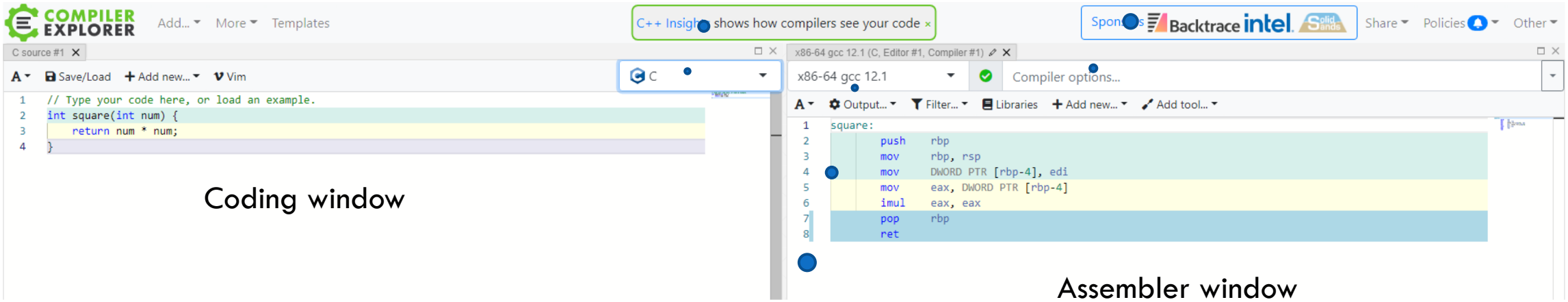
- https://godbolt.org/



Select prog. language and compiler version

Programming Language

Compiler options

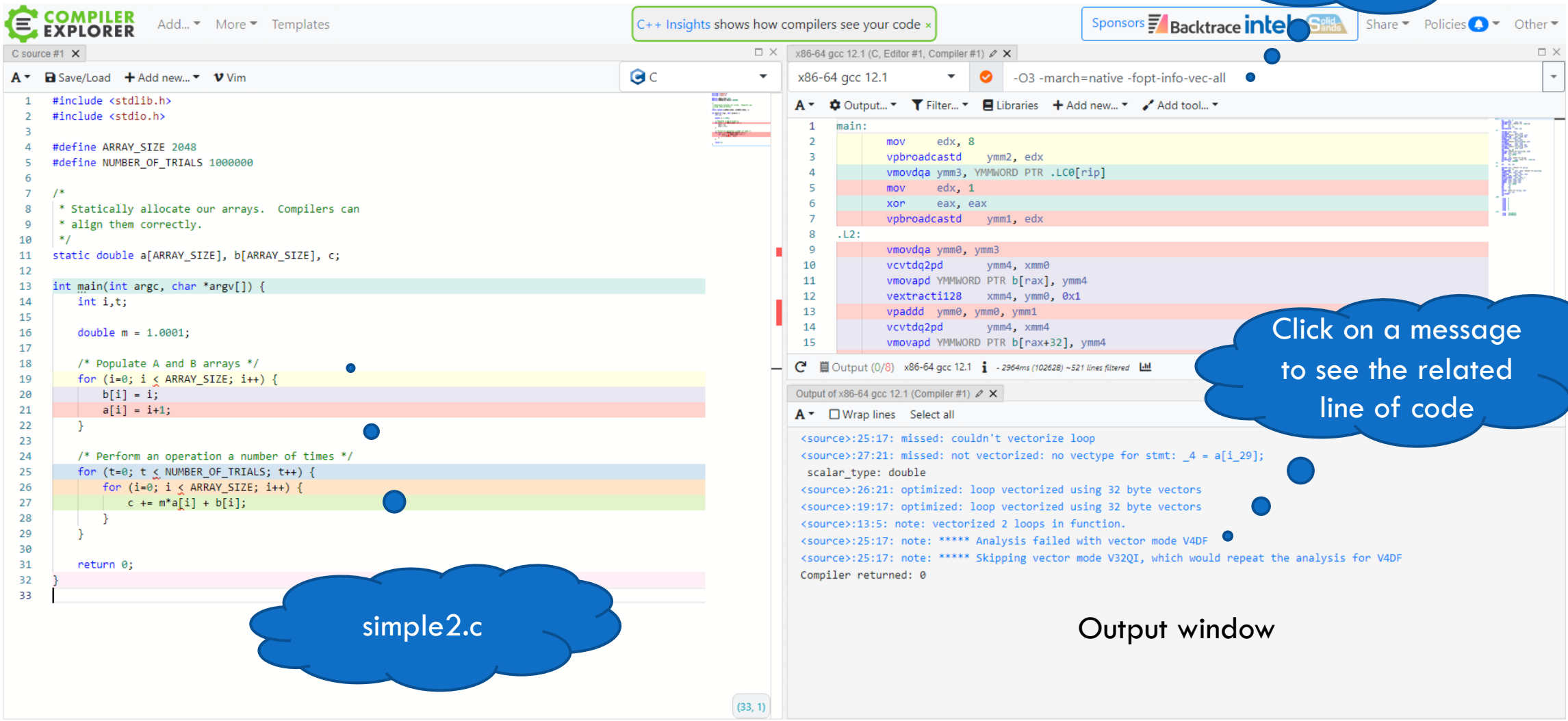


Coding window

Assembler window

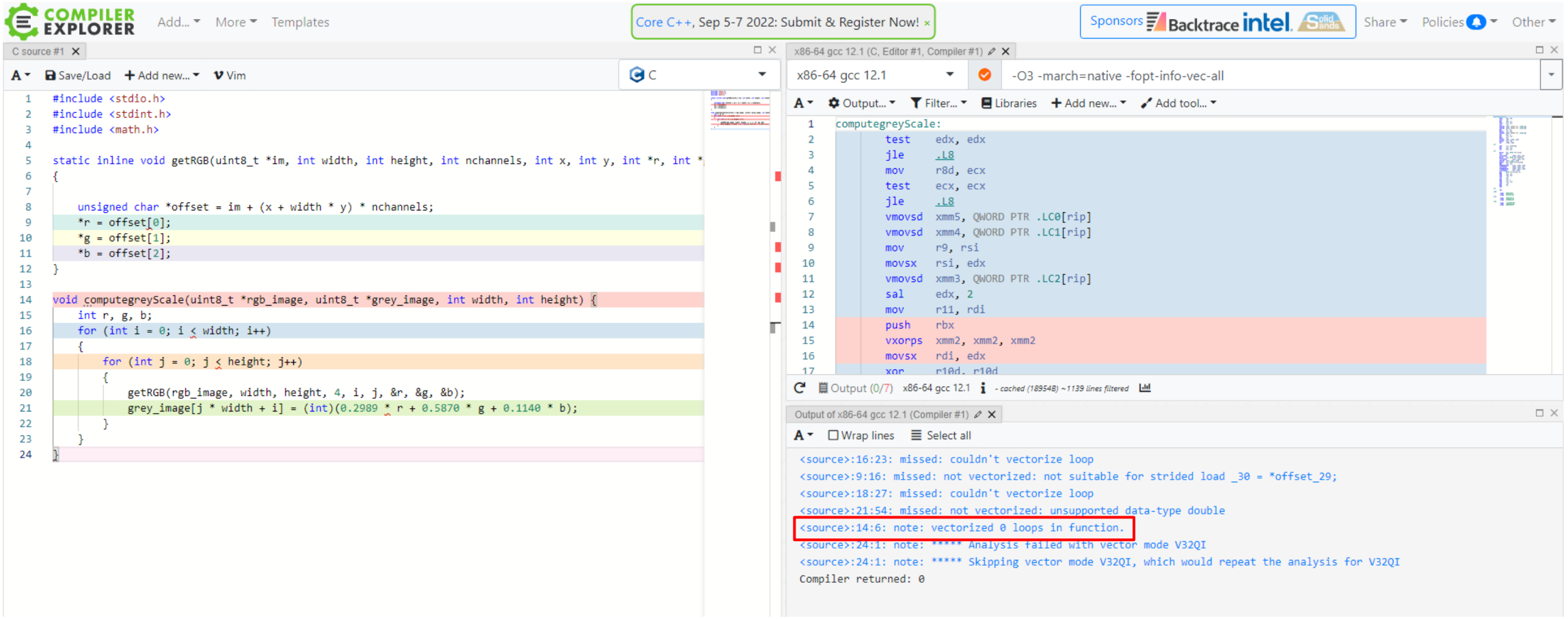
Compiler version

Auto-vectorizacion



Greyscale Autovectorization

No changes. No auto-vectorization




```c
#include <stdio.h>
#include <stdint.h>
#include <math.h>

static inline void getRGB(uint8_t *im, int width, int height, int nchannels, int x, int y, int *r, int *

{

    unsigned char *offset = im + (x + width * y) * nchannels;
    *r = offset[0];
    *g = offset[1];
    *b = offset[2];
}

void computegreyScale(uint8_t *rgb_image, uint8_t *grey_image, int width, int height) {
    int r, g, b;
    for (int i = 0; i < width; i++)
    {
        for (int j = 0; j < height; j++)
        {
            getRGB(rgb_image, width, height, 4, i, j, &r, &g, &b);
            grey_image[j * width + i] = (int)(0.2989 * r + 0.5870 * g + 0.1140 * b);
        }
    }
}
```

```
computegreyScale:
        test    edx, edx
        jle     .L8
        mov     r8d, ecx
        test    ecx, ecx
        jle     .L8
        vmovsd  xmm5, QWORD PTR .LC0[rip]
        vmovsd  xmm4, QWORD PTR .LC1[rip]
        mov     r9, rsi
        movsx   rsi, edx
        vmovsd  xmm3, QWORD PTR .LC2[rip]
        sal     edx, 2
        mov     r11, rdi
        push    rbx
        vxorps  xmm2, xmm2, xmm2
        movsx   rdi, edx
        xor     r10d, r10d
```

After changing the order of the loops