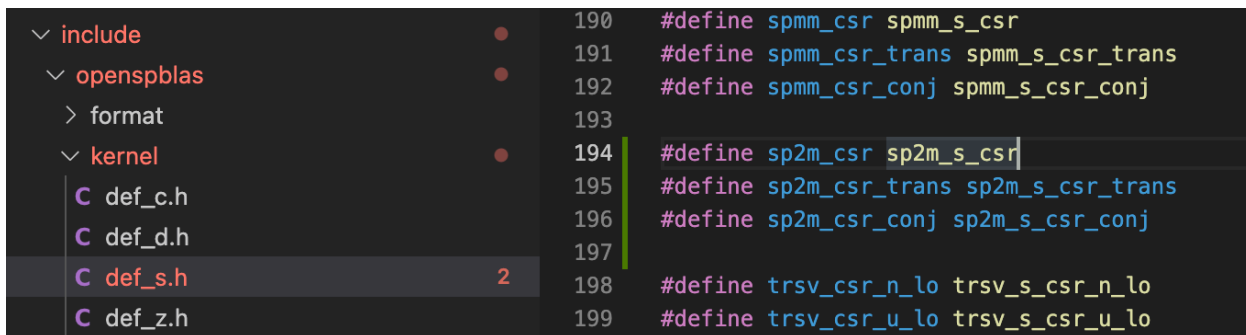How to add kernel to OPENSPBLAS:

For instance, if I want to add sp2m to the library, the steps are as follows:

1. Add CSR、CSC、COO and BSR to these four def_x.h

/include/openspblas/kernel/def_c.h
/include/openspblas/kernel/def_d.h
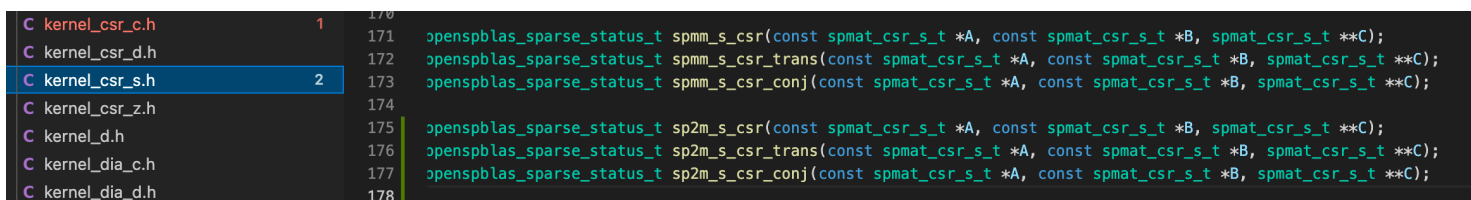/include/openspblas/kernel/def_s.h
/include/openspblas/kernel/def_z.h


```
190    #define spmm_csr spmm_s_csr
191    #define spmm_csr_trans spmm_s_csr_trans
192    #define spmm_csr_conj spmm_s_csr_conj
193
194    #define sp2m_csr sp2m_s_csr
195    #define sp2m_csr_trans sp2m_s_csr_trans
196    #define sp2m_csr_conj sp2m_s_csr_conj
197
198    #define trsv_csr_n_lo trsv_s_csr_n_lo
199    #define trsv_csr_u_lo trsv_s_csr_u_lo
```

2.

2. Add CSR、CSC、COO and BSR to these kernel_x_x.h. Using csr as an example:

/include/openspblas/kernel/kernel_csr_c.h
/include/openspblas/kernel/kernel_csr_d.h
/include/openspblas/kernel/kernel_csr_s.h
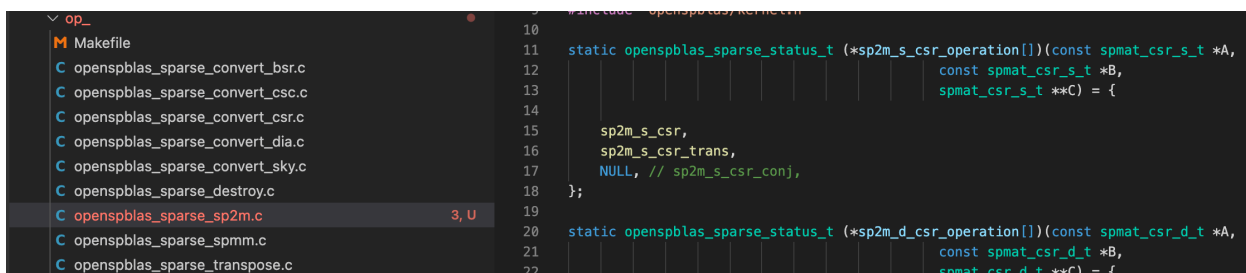/include/openspblas/kernel/kernel_csr_z.h


```
171    openspblas_sparse_status_t spmm_s_csr(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
172    openspblas_sparse_status_t spmm_s_csr_trans(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
173    openspblas_sparse_status_t spmm_s_csr_conj(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
174
175    openspblas_sparse_status_t sp2m_s_csr(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
176    openspblas_sparse_status_t sp2m_s_csr_trans(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
177    openspblas_sparse_status_t sp2m_s_csr_conj(const spmat_csr_s_t *A, const spmat_csr_s_t *B, spmat_csr_s_t **C);
178
```

3. Add CSR、CSC、COO and BSR to openspblas_sparse_sp2m.c as an example.

/src/core/op_


```
11    static openspblas_sparse_status_t (*sp2m_s_csr_operation[])(const spmat_csr_s_t *A,
12                                                                 const spmat_csr_s_t *B,
13                                                                 spmat_csr_s_t **C) = {
14
15        sp2m_s_csr,
16        sp2m_s_csr_trans,
17        NULL, // sp2m_s_csr_conj,
18    };
19
20    static openspblas_sparse_status_t (*sp2m_d_csr_operation[])(const spmat_csr_d_t *A,
21                                                                 const spmat_csr_d_t *B,
22                                                                 spmat_csr_d_t **C) = {
```

4. Add kernel code in /kernel/x86_64/level3/sp2m as an example.

```
∨ kernel                              ●
  › arm
  ∨ x86_64                            ●
    › level1
    › level2
    ∨ level3                          ●
      › add
      › mm
      › set
      ∨ sp2m                         ●
        C spmm_c_bsr_conj.c        U
        C spmm_c_csc_conj.c        U
        C spmm_c_csr_conj.c        U
        C spmm_x_bsr_trans.c       U
        C spmm_x_bsr.c             U
        C spmm_x_csc_trans.c       U
        C spmm_x_csc.c          2, U
        C spmm_x_csr_trans.c       U
        C spmm_x_csr.c          3, U
      › spmm                         ●
```