JupyterLab | JupyterLab

localhost:9000/lab?

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Name

- cc2cs_c.py
- cc2cs.c
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- cc2cs.srm
- data.csv
- f715.srm
- fc2cp
- fc2cp.f90
- fc2cp.srm
- fc2cpx
- fc2cpx.f90
- fc2cpx.srm
- fc2cpx2
- fc2cpx2.f90
- fc2cpx3
- fc2cpx3.f90
- fc2cs
- fc2cs.f90
- fc2cs.srm
- fc2csx
- fc2csx.f90
- ff90s

RfF90Mpi.ipynb | FftPytMpi.ipynb

Code | No Kernel

```
3) mathlibs/fftw/3.3.8_openmpi-3.1_gnu
```

[9]:
```
%%writefile pc2cp.py
import numpy as np, time as tm
from mpi4py_fft import PFFT, newDistArray
from mpi4py import MPI
comm = MPI.COMM_WORLD
rank = comm.Get_rank()
size = comm.Get_size()

t0 = tm.time()    # <--- time measurement

L = M = N = 600
NA = np.array([N, M, L], dtype=int)
f = PFFT(comm, NA, dtype=np.complex128, backend='pyfftw'
u = newDistArray(f, False)
u = np.fromfunction( lambda i, j, k:
        (i+1) * (j+1) * (k+1), u.shape, dtype=u.dtype )
u.imag = u.real

u_hat = f.forward(u, normalize=False)

rs = np.array(0, dtype=np.complex128)
s = np.array(np.sum(u_hat), dtype=np.complex128)
comm.Reduce([s, MPI.DOUBLE_COMPLEX], [rs, MPI.DOUBLE_COM
            op=MPI.SUM, root=0)

t1 = tm.time()    # <--- time measurement

if rank == 0 :
    print('S: {:.2f}  |  T: {:.4f}  |  N: {:0g}'
          .format(rs*1e-6, t1-t0, size))
```

pml01.ipynb | fc2cp.f90

```
program main
    use, intrinsic :: iso_c_binding
    use MPI
    implicit none
    include 'fftw3-mpi.f03'
    integer :: mpirank, mpisize, mpierror, i, j, k
    integer(C_INTPTR_T), parameter :: L = 600, M = 600, N = 600
    type(C_PTR) :: plan, cdata
    complex(C_DOUBLE_COMPLEX), pointer :: data(:,:,:)
    integer(C_INTPTR_T) :: alloc_local, local_N, local_start
    complex(C_DOUBLE_COMPLEX) :: s, rs
    double precision :: t0, t1

    call cpu_time(t0)    ! <--- start of time measurement

    call MPI_Init(mpierror)
```

eduardo.miranda2@sdumon

```
[eduardo.miranda2@sdumont11 ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux Server release 7.6 (Maipo)
[eduardo.miranda2@sdumont11 ~]$ head /proc/cpuinfo
processor       : 0
vendor_id       : GenuineIntel
cpu family      : 6
model           : 62
model name      : Intel(R) Xeon(R) CPU E5-2695 v2 @ 2.40GHz
stepping        : 4
microcode       : 0x42d
cpu MHz         : 2881.054
cache size      : 30720 KB
physical id     : 0
[eduardo.miranda2@sdumont11 ~]$
```

1 2

eduardo.miranda2@sdumont11:~