In order to add more kernel parameters (input index, output index or fixed constant values), two files should be modified:

- *Pick_bench.vhd*
- *TP_configuration.vhd*
- *streaming_multiprocessor_cntlr.vhd*

In this example we change the normal four parameters by the eight kernel parameters.

In *Pick_bench.vhd* some additional constants should be defined, such as:

```
-- used by old benchmarks
constant BENCH_KREG0: std_logic_vector(31 downto 0) := x"00000000";
constant BENCH_KREG1: std_logic_vector(31 downto 0) := x"00001000";
constant BENCH_KREG2: std_logic_vector(31 downto 0) := x"00002000";
constant BENCH_KREG3: std_logic_vector(31 downto 0) := x"00000020";

constant BENCH_KREG4: std_logic_vector(31 downto 0) := x"AAAAAAAA";
constant BENCH_KREG5: std_logic_vector(31 downto 0) := x"000CAFE2";
constant BENCH_KREG6: std_logic_vector(31 downto 0) := x"000CAFE3";
constant BENCH_KREG7: std_logic_vector(31 downto 0) := x"000CAFE4";
```

Those constants (*BENCH_KREG4 - 7*) are assigned into the register memory defining the shared memory parameters.

Additionally, the total number of kernel parameters should be specified explicitly as:

```
constant BENCH KERNEL PARAM SIZE : std logic vector(3 downto 0)  :=  x"8";
```

In file *TP_configuration.vhd*, the *kernel_regs_default* structure is modified including the new constants:

```
signal kernel_regs             : kernel_regs_type;
constant kernel_regs_default : kernel_regs_type := (          --  15(0F)
    x"00000000", x"00000000", x"00000000", x"00000000",      -- 12
    x"00000000", x"00000000", x"00000000", x"00000000",      -- 8
    BENCH_KREG7, BENCH_KREG6, BENCH_KREG5, BENCH_KREG4,       -- 4
    BENCH_KREG3, BENCH_KREG2, BENCH_KREG1, BENCH_KREG0);      -- 0
```

Finally, in the *streaming_multiprocessor_cntlr.vhd* file, change PARAM_SIZE to support the loading process of each shared memory parameter. In this example, the new 4 parameters are loaded employing the configuration:

```
constant PARAM_SIZE  : integer := 80;            --16
```