

# Test Results – Tray Allocator

## Concurrent model

### Test result for one tray items - scenario 1

```
-----  
Tray allocation Conc model #1 : scenario1.txt  
- Only one tray items  
-----
```

```
< 1 >< 2 >  
*Induction id 3  
-> Item id 3 size 300 on tray id 10  
*Induction id 2  
-> Item id 2 size 200 on tray id 8  
*Induction id 1  
-> Item id 1 size 100 on tray id 6  
< 3 >< 4 >< 5 >  
*Induction id 2  
-> Item id 5 size 500 on tray id 11  
*Induction id 1  
-> Item id 4 size 400 on tray id 9  
< 6 >  
*Induction id 3  
-> Item id 6 size 100 on tray id 14  
< 7 >  
*Induction id 2  
-> Item id 8 size 300 on tray id 13  
< 8 >  
*Induction id 1  
-> Item id 7 size 200 on tray id 12  
< 9 >  
*Induction id 3  
-> Item id 9 size 400 on tray id 17  
*Induction id 2  
-> Item id 11 size 100 on tray id 15  
< 10 >< 11 >< 12 >  
*Induction id 1  
-> Item id 10 size 500 on tray id 16  
< 13 >  
*Induction id 3  
-> Item id 12 size 200 on tray id 1  
*Induction id 2  
-> Item id 14 size 400 on tray id 19  
< 14 >  
*Induction id 1  
-> Item id 13 size 300 on tray id 18  
< 15 >  
*Induction id 3  
-> Item id 15 size 500 on tray id 3  
< 16 >  
*Induction id 2  
-> Item id 17 size 200 on tray id 2  
*Induction id 1  
-> Item id 16 size 100 on tray id 20  
< 17 >  
*Induction id 3  
-> Item id 19 size 300 on tray id 5  
< 18 >  
*Induction id 2  
-> Item id 20 size 200 on tray id 4
```

## Test Results – Tray Allocator

```
< 19 >< 20 >< 21 >< 22 >< 23 >
*Induction id 1
-> Item id 18 size 100 on tray id 7
-----
Simulation completed for sorter configuration
-----
< 24 >
Specified throughput [items/hour]: 10000
Sorter speed          [mm/sec]: 2000
Item max size         [mm]: 1500
Item min size         [mm]: 100
Tray size             [mm]: 600
Number of trays       : 20
Number of inductions  : 3
Induction rate        : 2
Induction separation   [trays]: 2
-----
Number of trays with items : 20
Two tray items on sorter   : 0
Number of tray steps       : 23
Number of inducted items   : 20
Calculated throughput[items/hour]: 10434
-----
      ****      Sorter is full      *****
-----
```

# Test Results – Tray Allocator

## Concurrent model

### Test result for two tray items - scenario 2

-----  
Tray allocation Conc model #1 : scenario2.txt  
- Only two tray items  
-----

< 1 >< 2 >  
\*Induction id 3  
-> Item id 3 size 800 on tray id 9  
-> Item id 3 size 800 on tray id 10  
\*Induction id 2  
-> Item id 2 size 700 on tray id 7  
-> Item id 2 size 700 on tray id 8  
\*Induction id 1  
-> Item id 1 size 600 on tray id 6  
-> Item id 1 size 600 on tray id 5  
< 3 >< 4 >< 5 >< 6 >  
\*Induction id 2  
-> Item id 5 size 600 on tray id 11  
-> Item id 5 size 600 on tray id 12  
< 7 >< 8 >< 9 >< 10 >  
\*Induction id 1  
-> Item id 4 size 900 on tray id 13  
-> Item id 4 size 900 on tray id 14  
< 11 >\*Induction id 3  
-> Item id 6 size 700 on tray id 18  
-> Item id 6 size 700 on tray id 19  
\*Induction id 2  
-> Item id 8 size 800 on tray id 16  
-> Item id 8 size 800 on tray id 17  
< 12 >< 13 >< 14 >< 15 >< 16 >< 17 >  
\*Induction id 1  
-> Item id 7 size 700 on tray id 20  
-> Item id 7 size 700 on tray id 1  
< 18 >< 19 >< 20 >< 21 >< 22 >< 23 >  
-----

Simulation completed for sorter configuration  
-----

< 24 >Specified throughput [items/hour]: 10000  
Sorter speed [mm/sec]: 2000  
Item max size [mm]: 1500  
Item min size [mm]: 100  
Tray size [mm]: 600  
Number of trays : 20  
Number of inductions : 3  
Induction rate : 2  
Induction separation [trays]: 2  
-----

Number of trays with items : 16  
Two tray items on sorter : 8  
Number of tray steps : 23  
Number of inducted items : 8  
Calculated throughput[items/hour]: 8347  
-----

\*\*\*\* Sorter is not full \*\*\*\*  
-----

# Test Results – Tray Allocator

## Concurrent model

### Test result for mix of tray size items - scenario 3

```
-----  
Tray allocation Conc model #1 : scenario3.txt  
- Mix of one and two tray items  
-----
```

```
< 1 >< 2 >  
*Induction id 3  
-> Item id 3 size 200 on tray id 10  
*Induction id 2  
-> Item id 2 size 800 on tray id 7  
-> Item id 2 size 800 on tray id 8  
*Induction id 1  
-> Item id 1 size 100 on tray id 6  
< 3 >< 4 >< 5 >  
*Induction id 2  
-> Item id 5 size 400 on tray id 11  
*Induction id 1  
-> Item id 4 size 200 on tray id 9  
< 6 >  
*Induction id 3  
-> Item id 6 size 700 on tray id 13  
-> Item id 6 size 700 on tray id 14  
< 7 >< 8 >< 9 >  
*Induction id 2  
-> Item id 8 size 300 on tray id 15  
< 10 >< 11 >< 12 >< 13 >  
*Induction id 1  
-> Item id 7 size 800 on tray id 16  
-> Item id 7 size 800 on tray id 17  
< 14 >  
*Induction id 3  
-> Item id 9 size 400 on tray id 2  
*Induction id 2  
-> Item id 11 size 800 on tray id 19  
-> Item id 11 size 800 on tray id 20  
< 15 >< 16 >< 17 >< 18 >< 19 >< 20 >  
*Induction id 1  
-> Item id 10 size 900 on tray id 3  
-> Item id 10 size 900 on tray id 4  
< 21 >< 22 >< 23 >< 24 >  
*Induction id 3  
-> Item id 12 size 200 on tray id 12  
-----
```

```
Simulation completed for sorter configuration  
-----
```

```
< 25 >Specified throughput [items/hour]: 10000  
Sorter speed [mm/sec]: 2000  
Item max size [mm]: 1500  
Item min size [mm]: 100  
Tray size [mm]: 600  
Number of trays : 20  
Number of inductions : 3  
Induction rate : 2  
Induction separation [trays]: 2  
-----
```

```
Number of trays with items : 17
```

## Test Results – Tray Allocator

Two tray items on sorter : 5  
Number of tray steps : 24  
Number of inducted items : 12  
Calculated throughput[items/hour]: 8500

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\*\*\*\* Sorter is not full \*\*\*\*  
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## Test Results – Tray Allocator

### Real-time Distributed model

#### Deployment scenario 1 – IC on each CPU

#### Test result for mix of tray size items – scenario 1

-----  
Tray allocation RTD1 model #1 : scenariol.txt  
-----

```
[ 100 , 1 , 100 , 6214 ]
[ 200 , 2 , 200 , 8546 ]
[ 300 , 3 , 300 , 10878 ]
[ 400 , 4 , 400 , 13220 ]
[ 500 , 5 , 500 , 14314 ]
[ 600 , 6 , 100 , 16656 ]
[ 700 , 7 , 600 , 18998 ]
[ 800 , 8 , 100 , 21340 ]
[ 900 , 9 , 200 , 22434 ]
[ 1000 , 10 , 500 , 24860 ]
[ 1100 , 11 , 400 , 27254 ]
[ 1200 , 12 , 200 , 29648 ]
[ 1300 , 13 , 300 , 30794 ]
[ 1400 , 14 , 400 , 33188 ]
[ 1500 , 15 , 500 , 35582 ]
[ 1600 , 16 , 100 , 37976 ]
[ 1700 , 17 , 200 , 39122 ]
[ 1800 , 18 , 300 , 41516 ]
[ 1900 , 19 , 100 , 43910 ]
[ 2000 , 20 , 200 , 46304 ]
[ 2100 , 21 , 500 , 47450 ]
[ 2200 , 22 , 100 , 49844 ]
[ 2300 , 23 , 200 , 52238 ]
[ 2400 , 24 , 300 , 54632 ]
[ 2500 , 25 , 100 , 55778 ]
[ 2600 , 26 , 200 , 58172 ]
```

-----  
Simulation completed for sorter configuration  
-----

```
Specified throughput [items/hour]: 10000
Sorter speed          [mm/sec]: 2000
Item max size         [mm]: 1500
Item min size         [mm]: 100
Tray size              [mm]: 600
Number of trays                : 20
Number of inductions           : 4
Induction rate                 : 2
Induction separation           [trays]: 2
```

-----  
Number of trays with items : 18  
Two tray items on sorter : 1  
Number of tray steps : 23  
Number of inducted items : 17  
Calculated throughput[items/hour]: 9391  
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\*\*\*\*\* Sorter is not full \*\*\*\*\*  
-----

## Test Results – Tray Allocator

### Real-time Distributed model

### Deployment scenario 2 – 2xIC on CPU

### Test result for mix of tray size items – scenario 1

-----  
Tray allocation RTD2 model #1 : scenariol.txt  
-----

```
[ 100 , 1 , 100 , 6214 ]
[ 200 , 2 , 200 , 8546 ]
[ 300 , 3 , 300 , 10878 ]
[ 400 , 4 , 400 , 13220 ]
[ 500 , 5 , 500 , 14314 ]
[ 600 , 6 , 100 , 16656 ]
[ 700 , 7 , 600 , 18998 ]
[ 800 , 8 , 100 , 21340 ]
[ 900 , 9 , 200 , 22434 ]
[ 1000 , 10 , 500 , 24860 ]
[ 1100 , 11 , 400 , 27254 ]
[ 1200 , 12 , 200 , 29648 ]
[ 1300 , 13 , 300 , 30794 ]
[ 1400 , 14 , 400 , 33188 ]
[ 1500 , 15 , 500 , 35582 ]
[ 1600 , 16 , 100 , 37976 ]
[ 1700 , 17 , 200 , 39122 ]
[ 1800 , 18 , 300 , 41516 ]
[ 1900 , 19 , 100 , 43910 ]
[ 2000 , 20 , 200 , 46304 ]
[ 2100 , 21 , 500 , 47450 ]
[ 2200 , 22 , 100 , 49844 ]
[ 2300 , 23 , 200 , 52238 ]
[ 2400 , 24 , 300 , 54632 ]
[ 2500 , 25 , 100 , 55778 ]
[ 2600 , 26 , 200 , 58172 ]
```

-----  
Simulation completed for sorter configuration  
-----

```
Specified throughput [items/hour]: 10000
Sorter speed          [mm/sec]: 2000
Item max size         [mm]: 1500
Item min size         [mm]: 100
Tray size              [mm]: 600
Number of trays                : 20
Number of inductions           : 4
Induction rate                 : 2
Induction separation           [trays]: 2
```

-----  
Number of trays with items : 18  
Two tray items on sorter : 1  
Number of tray steps : 23  
Number of inducted items : 17  
Calculated throughput[items/hour]: 9391  
-----

-----  
\*\*\*\* Sorter is not full \*\*\*\*  
-----