

## Mini Experiment - The actual numbers need to be cut out before lesson and in envelopes or plastic wallets

The class will be in two teams. Classes were originally going to be 16 but if your class is larger you might have to think what other jobs the spare two people might have.

The layout required for this to work should have already been set out before the lesson to make this part of the lesson easier.

### **Comparing CPU Clock speeds**

One team will have a calculator to make this easier as in giving the sense of having a higher clock speed. The groups can only move one number at a time up to the CPU through the cache(Middle area) at a time.

#### **Numbers of computation**

- 1. 256**
- 2. 4398**
- 3. 6789**
- 4. 467859**

### **Comparing Cache Effect**

This time both groups can use a calculator to add up the numbers however one group will have a larger CPU cache so will be able to retrieve, pass and execute 3 bits of information at once.

#### **Numbers for computation**

- 3**
- 6**
- 24**
- 456**
- 23467**
- 234567**

### **Comparing effect of multiple cores(In this case two cores)**

This time the groups will have to run to compute the answer to two sets of numbers. One group will have an extra person to help(Second core). This means that one group will be able to do both sets of instructions at the same time while the single core will have to compute one set of instructions then the second set. This time both groups can have a cache size of 3.

<u>Set of instructions 1</u>	<u>Set of instructions 2</u>
1. 434	1. 12233
2.23454	2.4432
3.234543	3.567
4.234543	4.3
5.23453	5.4456
6. 5	6.2111

Large print off version

Clock Speed

<b>256</b>	<b>256</b>
<b>498</b>	<b>498</b>
<b>6789</b>	<b>6789</b>
<b>467859</b>	<b>467859</b>

Cache Size

<b>3</b>	<b>3</b>
<b>6</b>	<b>6</b>
<b>24</b>	<b>24</b>
<b>456</b>	<b>456</b>
<b>23467</b>	<b>23467</b>
<b>234567</b>	<b>234567</b>

Number of cores

<b><u>Set of</u> <u>instructions</u> <u>s 1</u></b>	<b><u>Set of</u> <u>instructions</u> <u>s 2</u></b>
1. 434	1. 12233
2. 23454	2. 4432
3. 234543	3. 567
4. 234543	4. 3
5. 23453	5. 4456
6. 5	6. 2111

<b><u>Set of</u> <u>instructions 1</u></b>	<b><u>Set of</u> <u>instructions 2</u></b>
<b>1. 434</b>	<b>1. 12233</b>
<b>2. 23454</b>	<b>2. 4432</b>
<b>3. 234543</b>	<b>3. 567</b>
<b>4. 234543</b>	<b>4. 3</b>
<b>5. 23453</b>	<b>5. 4456</b>

<b>6. 5</b>	<b>6.2111</b>
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