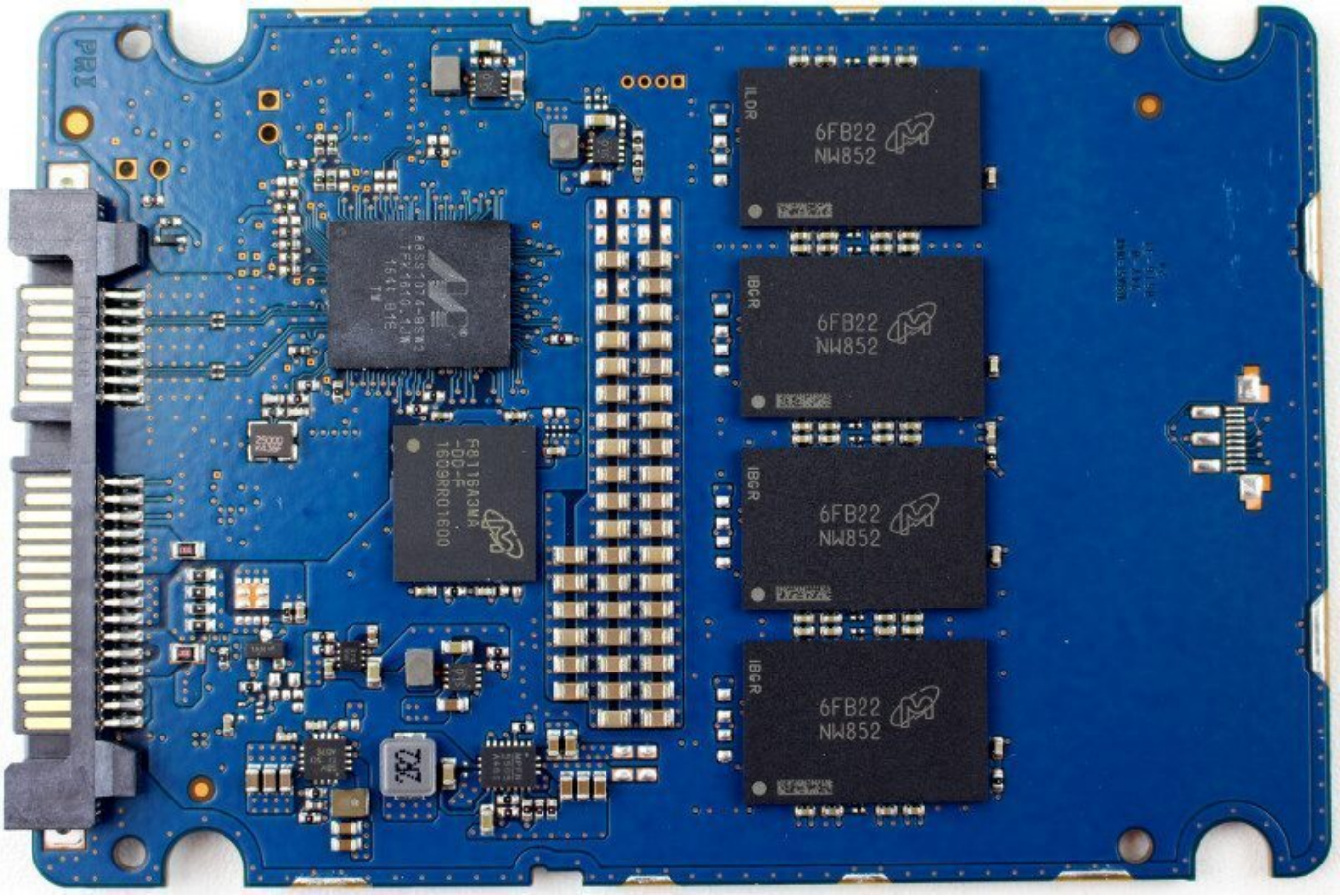
[Np Complete Vs Np Hardclevelandmultifiles]



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Which is the shortest round-trip to follow? ABCEDA? ADECBA?An obvious solution is to check all possibilities.. It is like saying there are things that People can do ('P'), there are things that SuperPeople can do ('SP'), and there are things *only* SuperPeople can do ('SP-complete').. “NP hard” problems are problems at least as complex as the NP-complete problems.

Ouch! Luckily, there are special ways to break the problem into sub-problems (called 'dynamic programming', but the best still take exponential time: t = 2n(2 with an exponent of n)So a program that solves 20 cities in 1 second will solve 30-cities in about 10 minutes, and 60-cities in about 35,000 Years (still a bit too long).

So this method takes 'factorial time': t = n!(Actually t = (n-1)! but it is still factorial.. Thus 'NP' means 'we can solve it in polynomial time if we can break the normal rules of step-by-step computing'.. NP-Complete: can be solved in Polynomial timeonly using a Non-deterministic method.. So, the easy problems are in 'P' (and 'NP'), but the really hard ones are *only* in 'NP', and they are called 'NP-complete'.

So this 'N' computer can solve lots more problems in 'P' time - for example it can just clone copies of itself when needed.

NP: can be solved in Polynomial time using a Non-deterministic method (also includes P problems) Amazing Computers can also do what normal Computers canSince this amazing 'N' computer can also do anything a normal computer can, we know that 'P' problems are also in 'NP'.. What was the first problem proved as NP-Complete? “NP-complete” problems are NP problems such that finding a solution to them would let you solve every NP problem.. now go and read something more rigorous Design and Analysis of AlgorithmsBasics of AlgorithmsDesign StrategiesGraph TheoryHeap AlgorithmsNp Complete Vs Np Hardclevelandmultifiles PracticeSorting MethodsComplexity TheoryDAA Useful ResourcesSelected ReadingA problem is in the class NPC if it is in NP and is as hard as any problem in NP.. Example: a program's time increases by x2So a problem that is twice as hard takes 4 times as long.. NP-Complete may not lastOh, one more thing, it is believed that if anyone could *ever* solve an 'NP-Complete' problem in 'P' time, then *all* 'NP-complete' problems could also be solved that way by using the same method, and the whole class of 'NP-Complete' would cease to exist.. It is not intended to be an exact definition, but should help you to understand the concept.. It is not a Super Computer (they are just very fast normal computers), it is really a 'Non-deterministic' computer, but I am calling it an Amazing Computer to give you the idea!So, programs that take dramatically longer as the problem gets harder (i. e10c415e6f