CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CHRIST UNIVERSITY, BENGALURU - 74

INDUSTRIAL VISIT to CSIR-4PI , Bengaluru

19th September 2019

An industrial visit to the CSIR-4PI, Bengaluru was organized by the Department of Computer Science and Engineering, on 19th September 2019, at 12:30pm for the students of 5BTCS-A. The visit to the campus was a learning and knowledge gaining experience, as the students got an opportunity to know more about the Data centres, HPC etc.

Visit Details:

Date of Visit	Semester	No. of Students	No. of Faculty members	Timing
19th September 2019	V-A	51	5	12:30pm to 6:30pm
Total no. of visitors		51+5=56		

OBJECTIVE: The objective of this industrial visit was to help the students gain knowledge in the area of High Performance Computing (HPC). The facility was equipped with the sixth fastest supercomputer in the country. The supercomputer is ranked three hundredth in the world and in conjunction with its power and security system the facility is also a level three data centre.

POSSIBLE LEARNING OUTCOMES:

SESSION 1:

The speaker for the first session was Prabhu Senior Technical Officer-2 at CSIR-4PI, his area of expertise in the organization is Mathematical Modelling and Computer Simulation.

The first session was on how supercomputing and HPC are essentially the same and the major use of these is in rapid computation, weather forecast, ocean floor mapping among others. Followed by which the working of a super computer was explained, that included how tasks are submitted and processed. The immense use of parallel computing was also highlighted by an example of processing a large task on a single system as opposed to a computer with many nodes.

The next part of the talk concentrated on the facility itself, this included the building details like the fact that it was a level three data centre. The status of a level three data centre included the facility housing a serer room that had a false ceiling and a raised floor coupled with water cooling system that and a failsafe power backup. The talk ended with a discussion on the various super computers housed across India by various organizations and their specification along with the two super computers that are planned to be released in the near future.

SESSION 2:

The second session was headed by Dr.patra , scientist at the super computer facility at NAL. The second session was a viewing session of the server room and the students were split in three batches and taken thorough the server room that housed the Anat supercomputer, the

fastest Indian supercomputer in 2013 with a 362 Teraflop capacity. The room besides having an uninterrupted power supply had a very cost effective as well as a environment friendly cooling system that uses water to cool the system. The water used in this process is at 4^0 centigrade and is circulated till it reaches 35^0 degrees after which it is replaced by cool water again and the entire cooling process uses one thousand litters of distilled water for a period of four years. The rooms RDHES (Rear Door Heat Exchange System) was discussed followed by the fire containment system that uses gas 1230, a non venomous and eco friendly gas that suppresses fires in under fifteen seconds. The session ended with a showing of the Storage units that consisted of hard drives as well as magnetic disks and were supplied by Mellanox Technologies.

THE SUPERCOMPUTER : ANANT

The main event of the visit was the chance to see up close the functioning of the Anant supercomputer. We were provided strict regulations to follow when we entered the HPC premises. It was the typical datacenter with air curtains, air conditioning and other dust removal mechanisms in place. Footwear is not allowed inside on account of it being a clean room. Photography was not allowed on campus due to concerns to national security.

The Anant supercomputer [image © CSIR-4PI]

Features of the HPC cluster were :

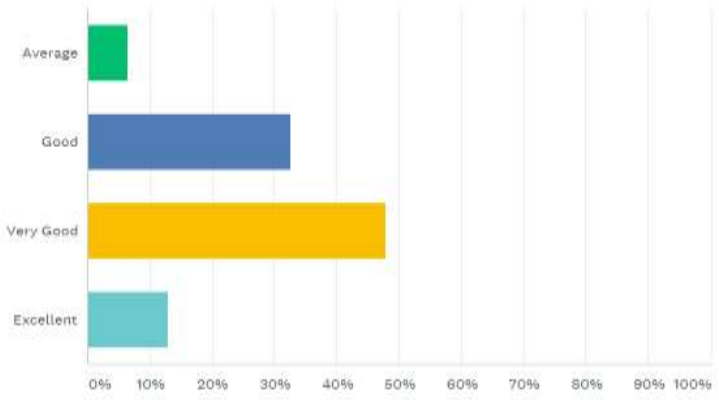
- Designed and deployed by HP Inc.

- Consists of Intel Xeon CPU based blades
- Is actively water cooled
- Has separate racks for processing, storage and network hardware connected via custom interconnect
- Has multiple redundancies for storage
- Has multiple redundancies for network
- Has multiple redundancies for power backup
    - Has three backup power generators

CONSOLIDATED FEEDBACK ANALYSIS:

Q1. How would you rate CSIR-NAL industrial visit?

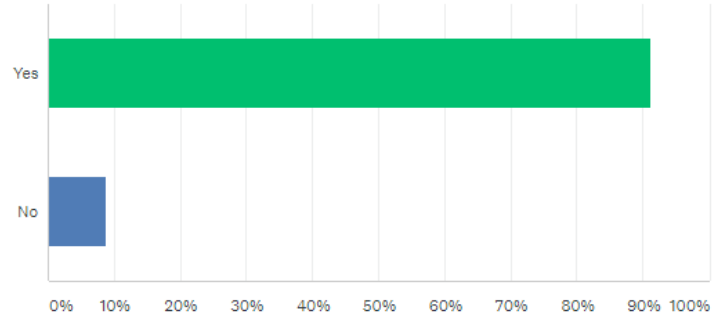
Answered: 46 Skipped: 0



ANSWER CHOICES	RESPONSES	
Average	6.52%	3
Good	32.61%	15
Very Good	47.83%	22
Excellent	13.04%	6
Total		46

Q2. Do you advise to arrange these types of visit in the future?

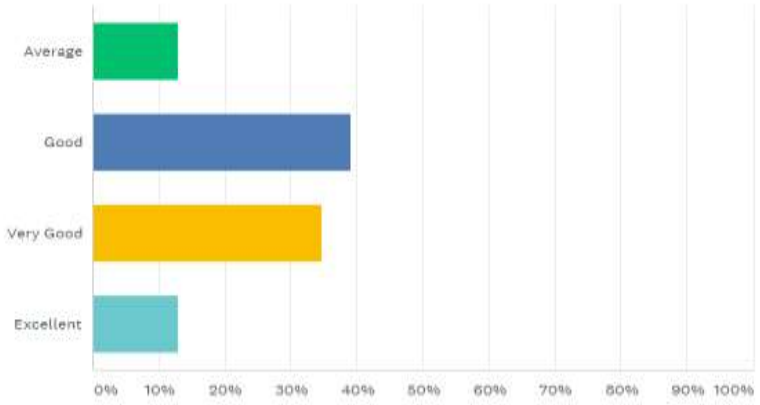
Answered: 46 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	91.30%	42
No	8.70%	4
Total		46

Q3. Rate the knowledge acquired from the industrial visit ?

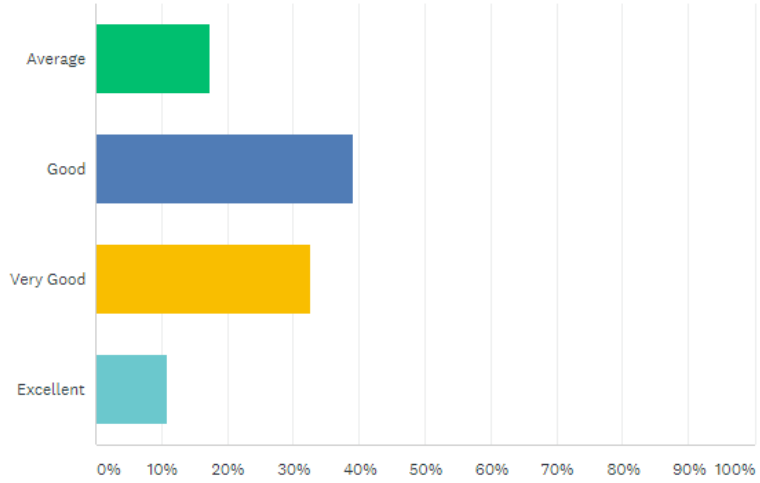
Answered: 46 Skipped: 0



ANSWER CHOICES	RESPONSES	
Average	13.04%	6
Good	39.13%	18
Very Good	34.78%	16
Excellent	13.04%	6
Total		46

Q4. Possible impact of this industrial visit to the teaching/learning experience?

Answered: 46 Skipped: 0



ANSWER CHOICES	RESPONSES	
Average	17.39%	8
Good	39.13%	18
Very Good	32.61%	15
Excellent	10.87%	5
Total		46

Q5. Your inputs on the CSIR-NAL industrial visit?

Showing **43** responses

Practical application of the super computer would have been good.
7/21/2017 8:57 AM View respondent's answers

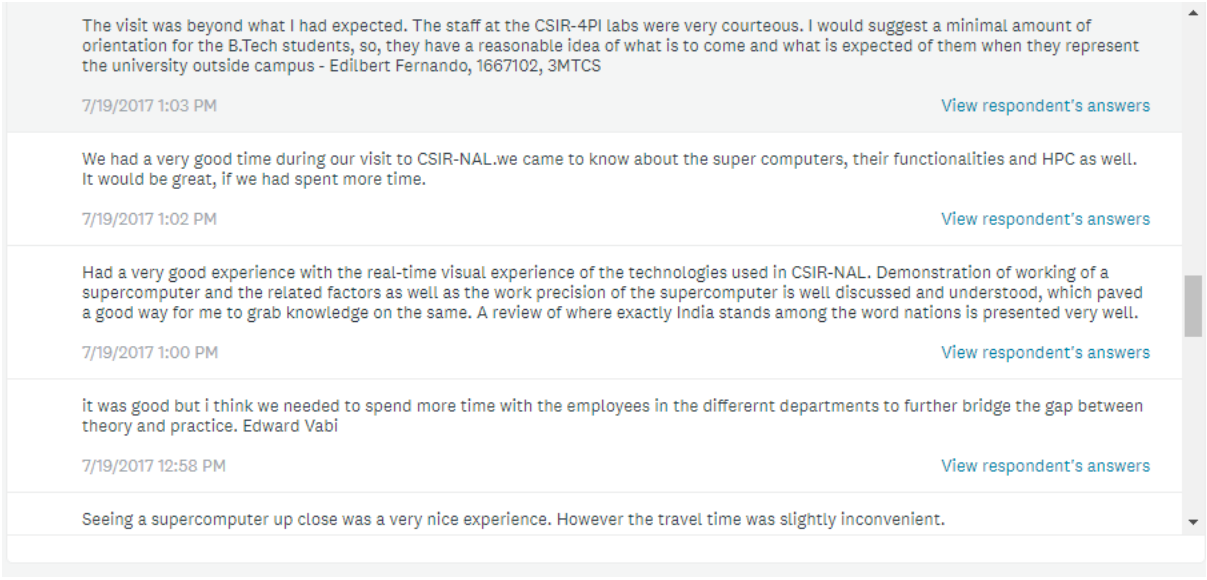
Need more exposure in the industry for the students as the theoretical and practical scenarios vary too much.
7/19/2017 9:38 PM View respondent's answers

It was not much related to the updated world of cs
7/19/2017 9:38 PM View respondent's answers

It was really a very new experience and we have learnt a lot more new things which probably if taught theoretically we may not have understood, and I hope that we will have many more such visits which will help us in exploring more. - T M NIVED
7/19/2017 9:35 PM View respondent's answers

Take to more visits like this Raghav
7/19/2017 9:32 PM View respondent's answers

We were briefed about supercomputers for the first time.. and we were allowed to physically see the supercomputer....it would have been great if we were given a detailed explanation about the complements n working of the supercomputer



Sl No	Faculty Name	Signature
1.	**Mr.Praveen Naik (Organizer)**	
2.	Dr. A V N Krishna	
3.	Mr. Mithun B N	
4.	Mrs.Vandana Reddy	
5.	Mr. Gurudas V R	

Head of the Department