

Price
₹ 200
A 9.9 Group
Publication

digit



MOBILE
REVIEW

IPHONE
14 PRO
MAX

YOUR TECHNOLOGY NAVIGATOR | WWW.DIGIT.IN | VOL.22 ISSUE 10 | OCTOBER 2022



DIWALI TECH GIFTING GUIDE

Find the perfect #Gifts4Geeks, at all budgets



TECH

LEVEL UP YOUR CLOUD
STORAGE, WHAT IS FFS?,
AIR PURIFYING HELMETS

ALT

CARS ON THE ROAD REVIEW,
CREATIVE STAGE 360 AND GARMIN
INSTINCT 2 SOLAR EXAMINED

SCI

THE MODERN BRAIN,
ASTEROIDS -
DESTROYERS?

CULT

BOO-MAN - IPHONE 14
PRO MAX, FOLEY
ARTISTS

SAMSUNG

Memory for life

Fast storage solutions that
work seamlessly with your devices



Scan to experience

Available at: [amazon](#) | [Flipkart](#)



Please dispose of e-waste and plastic waste responsibly. For more information or for e-waste pick up, please call 1800 40 7267864 or 1800 5 7267864.

*Source: 2003-2021 OMDIA data:
NAND suppliers' revenue market share.
Image simulated, for representational purposes only.

Cheil-12614/22



The Alrtists are here

IF I HAD A RUPEE FOR EACH TIME A COOL NEW FEATURE IN AN UPCOMING GADGET WAS INDEED USING AN AI MODEL, THEN I'D BE JUST A FEW THOUSAND BUCKS RICHER.

Implementing an AI model is very easy these days. Most of the popular frameworks have plenty of ready-to-go models pre-baked into them. For example, image classifiers are one of the most common ones and all you need is a decently large labelled data set and you've got a production ready "Beta" feature that can be shipped immediately. The model can be fine-tuned later on to achieve a much higher accuracy and what better data set to train your model on than the data of your consumers? All you need to do is add a little clause in your privacy policy and all your consumers' data is yours for the taking.

New technologies are usually implemented where the said feature is most visible, where it can be easily advertised and where it can be easily distinguished as an add-on value rather than just a gimmick. It gives companies a justification to call their product better than the rest and also charge their consumers a little extra for including cutting-edge technology. The wow factor is what usually helps sell the product. Take for example, Facetune. It's a photo editing app that became a phenomenon in South-East Asia for the eerily accurate photo-edits that it enabled with just a few taps. That also helped the company behind Facetune raise more than 335 million dollars in funding.

The AI wave is also expected to nullify entire job pools where human resources are considered to be cheap labour and lacking function-critical skills. The most common example used is that of fast-food chains replacing the service staff with automatons that will be controlled by a central AI. The AI will be able to observe consumer patterns and handle resource management way better than any human can. It would also be incredibly cheap to have automated fast-food chains rather than employing a decent workforce. Of course, we won't be seeing automatons in developing countries where human labour is extremely cheap any time soon but it will eventually arrive. Fast Food service jobs are just one of the many sectors that are bound to see massive human attrition. Telemarketing, advertising and market research specialists are all jobs that are more or less

going to be nullified. Yes, there will be some function where human supervisors are required but the majority chunk will be replaced.

Proponents of AI always state that the job losses from one sector will always be compensated by new jobs created elsewhere. While that is true, what they don't bother saying is that the job creation is usually in a domain which requires skills of a much higher order. The person who served you the yummiest burger at the local fast food chain can't just leave the fast food job and become a data scientist to work on the very AI model that made him or her jobless in the first place. There is a good 5-10 year education / training period required to make that transition.

Then there are jobs that are believed to be irreplaceable by AI, any time soon. I had to add a caveat to that statement for obvious reasons. The epitome of human creativity, expressed in an art form was considered to be one of the last bastions where AI was unlikely to equal the greats. That's because AI was thought to not mimic an artist's mind. Unfortunately, that's one of the first things that AI models were taught to do. Text and image classification, as I pointed out earlier, is one of the first things AI was trained to operate on.

And to create new images, AI models use a technique called latent diffusion. With all the artworks created by the best of humanity available on Google, these AI models have been able to easily create awe-inspiring pieces of art with just a few text prompts. Think of what that means, they were actually right. AI will create as many, if not more jobs as it eliminates. An immensely higher order skill has been relegated so just a few words. A few words that every Tom, Dick and Harry can muster up. Did you have a Dosa today morning while reading a new article about the SpaceX Falcon 9 taking a Russian cosmonaut to the ISS? That's a prompt! Here's an artistic rendition of a cosmonaut having masala dosa while enjoying a picturesque evening on Mars. Please note: I shall now be taking commissions for a reasonable fee. 



"New technologies are usually implemented where the said feature is most visible and where it can be easily advertised, where it can be easily distinguished as an add-on value rather than just a gimmick."



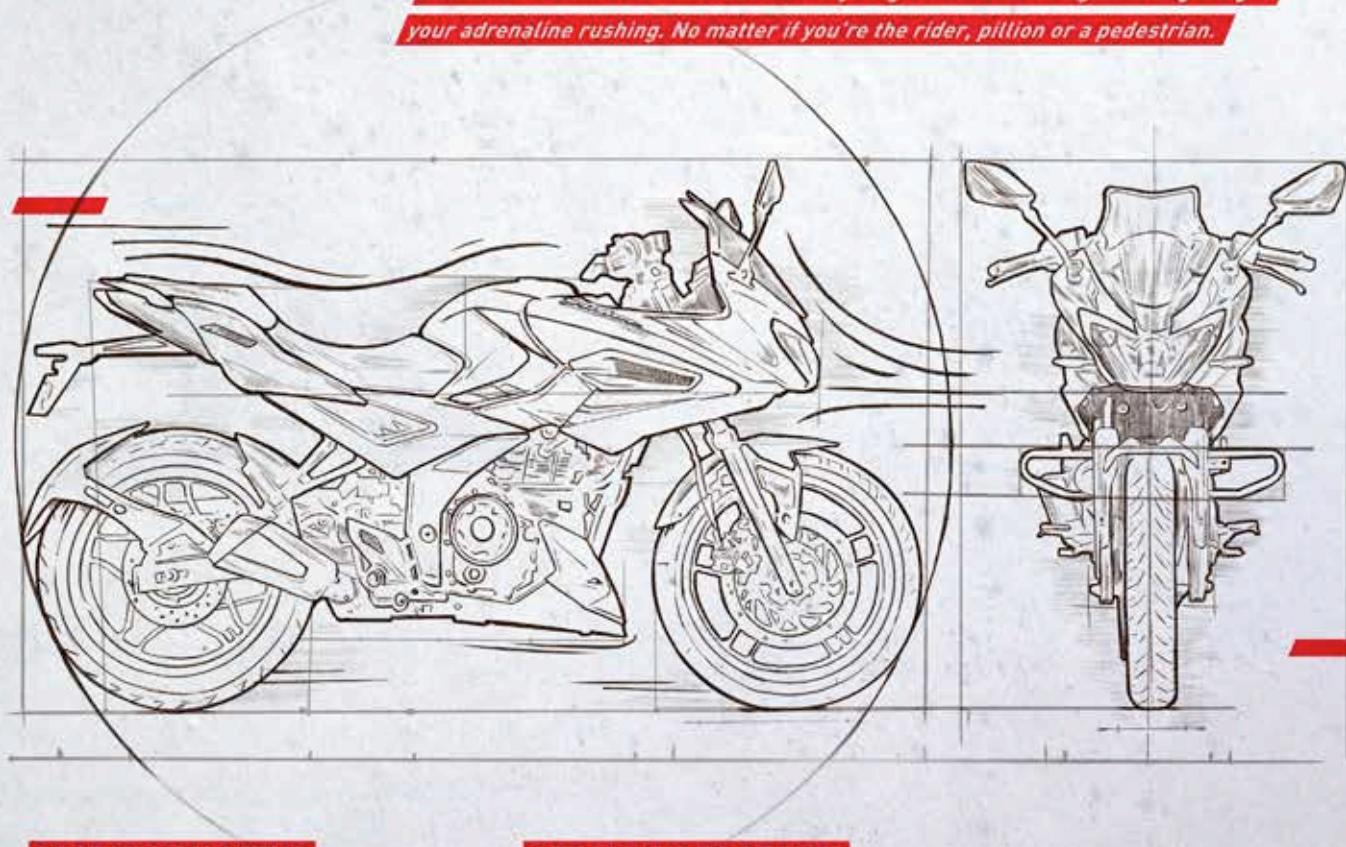
Let me know your thoughts on this column at:
@mithun_mohandas |
mithun@digit.in

BUILT LIKE A BEAST.

THE CHASSIS

The all-new Pulsar 250 comes with a new split steel tubular frame – a perfect hybrid of double-cradle frames and perimeter frame. The new frame places the engine as the main member in the setup, keeping its weight in check.

With its sharp aesthetics, striking details and aerodynamic design, the all-new Pulsar 250 is definitely a head turner. Engineered to thrill, it commands attention on the road. Every single feature is thought-through to get your adrenaline rushing. No matter if you're the rider, pillion or a pedestrian.



SUSPENSION SETUP

The suspension setup of the new Pulsar 250 is plush and does a fabulous job at soaking up bumps and nasty potholes, without unsettling the bike or the rider. It also does a good job of carving up corners. The bike is agile and tips easily into corners. You'll also realise that the bike is set-up on a 37mm telescopic front fork, with an all-new monoshock, with Nitrox at the rear.

AERODYNAMIC DESIGN

The features of the new Pulsar 250 boasts of an aerodynamic front-end, designed using the coveted CFD (Computational Fluid Dynamics) technology. The design is based on Bajaj's latest Sculptural Purity design philosophy. It is contoured in such a way that the small windscreens, wing mirrors and the overall front-nose reduces the windblast. Giving the bike a menacing butch look while

enhancing beast-like superior performance.

LED HEADLIGHTS

The aggressive front fascia with a Projector Unipod Headlamp and sleek eyebrow-like DRLs is the new Pulsar 250's USPs. It also comes with a Projector Unipod Headlamp and reverse-boomerang DRLs.

LOOKS LIKE A

BEAUTY



The dual beam ensures that it floods the road ahead of you, in a pure streetfighter styling, offering a sharp, suave look on the front.

THE BLACK BEAUTY

The all-black scheme comes in a special paint with a play of contrasting finishes. Its unique combination of gloss and matte high sparkle paint sports slivers of reds and silvers. Also, the black chrome branding, blacked out alloys, exhaust and engine casing are designed to give the latest Pulsar 250 a mean look.

CONSOLE

The all-new Pulsar 250 comes with an Infinity Display, a digital display with the Badge of Thrill – an analog tachometer needle. It not only gives a clear reading, but also has striking aesthetics. The timeless tachometer

needle, which is the coveted Badge of Thrill, acts as a nod to the golden age of high-performance motorcycling. Apart from this, it also offers multiple read-outs and a USB mobile charging port.

In conclusion, the new Pulsar 250 has been designed to give goosebumps even to the most seasoned rider. With exponentially better dynamics and details, it is a bike that outperforms everywhere –

while you maneuver through the city-maze as well on the highway. With a perfect combination of aesthetics and the ground-up design, the all-new Pulsar 250 is truly an appealing package for those who seek the best of both worlds, in a truly thrilling Pulsar style!



SCAN TO VISIT WEBSITE

pulsar
250
DEFINITELY MALE

Indian e-commerce's UPI moment

OVER SIX YEARS AGO, WHEN UPI WAS FIRST

INTRODUCED BY THE NPCI (National Payments Corporation of India) to unify the payment and receipt of money from multiple bank accounts through a single mobile application, it unleashed a tsunami of usability. Further spurred by the demonetization effect, apps like Paytm, Google Pay and PhonePe quickly became household names – indispensable from people's mobile phones. I know so many people within my extended family who had never bothered to sign-up for netbanking ever in their life quickly took to UPI payment apps like fish to water. It's a testimony to the ease of use and simple intuitiveness exhibited by UPI apps that truly remains unparalleled in empowering crores of Indians across different walks of life.

What UPI did to online payments in India, ONDC (One Network for Digital Commerce) wants to do something similar with e-commerce in the country – aiming to disrupt and re-imagine it from the ground up, to level the playing field for small businesses and mom-and-pop stores against the Amazons and Flipkarts of the online marketplace.

Think about the e-commerce experience in India, how we all buy goods and gadgets online right now: We all download a shopping app (like Amazon, Flipkart, Etsy, etc), which allows us to buy or sell stuff on these shopping platforms. Every e-commerce platform is its own separate shopping universe – you have to download the Amazon app to shop on Amazon's online marketplace, similarly you download the Flipkart, Etsy, and other shopping apps to buy stuff from these respective online marketplaces.

You cannot buy an item listed on Flipkart through Amazon, or vice versa. Each online shopping app only gives access to its own marketplace, and this can be a problem in the long-term. Just imagine, this model of online commerce completely shuts out consumers who are unaware of, can't or are unable to access these online shopping portals; they tend to lose out on participating in any form of commerce – which is the biggest flaw of traditional e-commerce in the form it exists right now.

Think about the past two pandemic years and how much pain and suffering would've been avoided if all the kirana stores and local

shops in your vicinity, including the street vendors, were instantly accessible over the Internet? You know they were around, and they knew all their customers were around as well – just physically unreachable because of the lockdown and fear of Covid-19. Imagine not having to wait for (or search for) apps like Swiggy, Zepto, Fraazo, etc, to enable veggies and grocery delivery services, and if there was a way to intuitively interact and transact with all hyperlocal businesses around your current location? That's essentially what ONDC will seemingly enable for buyers and sellers all over the country.

Where ONDC starts to become as disruptive as UPI is in the open nature of its network protocols. In an open network, as long as the platforms and applications are interoperable, buyers and sellers can transact no matter what platform or application they use to be digitally visible or available on the network. ONDC's strategy paper argues creation of a whole new network protocol for "e-commerce" activity, just like the "Internet Message Access Protocol (IMAP) / Simple Mail Transfer Protocol (SMTP) is for emails, Hypertext Transfer Protocol (HTTP) is for the World Wide Web, UPI for the payment systems," etc. This idea of ONDC itself is potentially disruptive, at a conceptual level. But there's more...

ONDC doesn't want to restrict itself for use in the retail sector alone, as its use cases and benefits can be extended to any digital commerce domains – mobility, food delivery, logistics, travel, urban services, etc. Virtually "any digital transaction between a buyer and seller for goods or services." And now you start to realize just how massive the scope of ONDC is conceived to be.

There's no doubt that ONDC is being introduced by the government to stop the Indian e-commerce sector from becoming a duopoly of Amazon and Flipkart, which together account for over 50% of all e-commerce activity in the country. I don't think it will allow for app-less digital commerce, but it will create a whole wave of new online apps and force the existing ones to better connect and serve buyers and sellers like never before. And more competition in the marketplace invariably has a way of benefiting the customers in the long run, as it rightly should. 



"What UPI did to online payments in India, ONDC (One Network for Digital Commerce) wants to do something similar with e-commerce in the country"



Let me know your thoughts on this column at: jayesh.shinde@digit.in | [@jshinde](https://twitter.com/@jshinde)

5G again

I'VE WRITTEN ABOUT MY OWN EXPERIENCE WITH 5G IN AUSTRALIA, WHEN I FIRST GOT IT A LITTLE OVER THREE YEARS AGO IN JULY 2019.

With India officially launching 5G services in September, I figured I'd write about my experience with the next generation of mobile services and see if any parallels can be drawn to what you should experience in India. Of course, Australia is the polar opposite of India. Australia has people spread out on a continent sized land mass with the highest concentrations being a few capital cities that have population densities of India's villages. While India is a large country as well, the population densities range from crowded to insane, and it's perfect for new mobile technologies.

First, let's fast forward through my three year experience of 5G. When it comes to my home broadband, apart from a configuration error of my closest tower meaning I was without any Internet for two weeks, because it happened during the pandemic and they couldn't get anyone out to fix it... I haven't really faced any noticeable down times to speak of. What that two weeks of having to use my mobile as a tether for my PC did was make me get a backup wired connection. And honestly, the wired connection goes down far more often than the 5G home broadband connection.

When it comes to 5G on my phone, while coverage has skyrocketed as compared to 2019, I still find a decent amount of teething problems and 5G dead spots – where my phone isn't handed over to a 4G tower despite 5G signal teetering on barely one bar of signal, and my internet experience feeling more like good old 3G! Despite my phone being on auto-select for networks, I can turn on Airplane mode and then turn the radios back on and immediately get full network strength 4G which feels orders of magnitude faster. I'm on a carrier that purchased the least bandwidth though, and which is perhaps using standalone towers (more on this later), so it could just be a problem faced by those using Vodafone in Perth, where I am.

Digit put out the first video of a 5G speed test on our socials, while we were at the Indian Mobile Congress – right after the PM announced that the 5G rollout had begun. One of our readers / followers made a comment that stuck out. He said something to the effect of, "Now we will finally get proper 4G speeds in the name of 5G". This is perhaps true, because while 4G is capable of speeds it has a problem with network congestion,

which is exactly what 5G aims to solve. Yes, it is true that I was getting similar speeds to the first Indian 5G tests on 4G here in Australia, four years ago, but Australia is a whole country that has less population than the much smaller area that is Greater Mumbai!

I expect India to speed ahead with the 5G rollout and for people to start getting average speeds of around 100-200 Mbps on their phones. This will mean much richer app experiences, the ability to game better, and an overall boost in connecting and downloading speeds across the board. Ping times will fall, so the ability to innovate with remote controls for various solutions will skyrocket. Once the bands of N78 (3.5 Ghz) and above start getting utilised properly, those are made for super high speeds and hugely congested networks. As the frequency rises the wavelength decreases, which means it becomes more prone to barrier interference. This is terrible for single towers covering large areas, but easily overcome with multiple small towers each covering a small area.

While there's no sense in Australian providers rushing to provide high frequency, high bandwidth 5G to the minuscule populations here, it makes total sense for the likes of Jio, Airtel and Vi to start setting up their higher frequency towers in India. Jio has already announced a plan to use standalone (SA) infrastructure. A bold move. Most carriers use non-standalone (NSA) towers, which basically means the towers are capable of sending out both 4G and 5G signals and switching people between them.

Eventually, however, the goal for all providers is to cover the whole of India with 5G SA towers and preparing for 6G to come in over the next decade or so. With 6G we'd expect an information superhighway that makes 5G's 20 Gbps peak speeds look like dial-up (remember that anyone?). With 6G everything will be connected – forget phones, we're talking cars, bikes, drones, robots, trains, buses, even electric cycles, traffic lights, streetlights... everything! I'm obviously getting carried away since 5G has just arrived!

Overall, very exciting times ahead for India! And networks are mere enablers. It's the way a billion innovative Indians will put the much higher bandwidth to use that really excites me. I cannot wait to see the next innovation cycle of our digital lives, and whatever those innovations are, they will surely be uniquely Indian! 



"I expect India to speed ahead with the 5G rollout and for people to start getting average speeds of around 100-200 Mbps on their phones."



Liked or hated this column? Let me know
at: robert@digit.in |
facebook.com/raaaboo
| @raaaboo | t.me/
digitgeek | discord.gg/
mYD8XVt | WhatsApp:
+91 98211 69631

content+

OCTOBER
2022
VOLUME 22
ISSUE 10

DIWALI TECH GIFTING GUIDE

Find the perfect #Gifts4Geeks, at all budgets

COVER STORY
PAGE 62-70

Diwali Tech Gifting Guide

Find the perfect #Gifts4Geeks, at all budgets. These recommendations come straight from the resident geeks at Digit, so you shouldn't go wrong when making your choice.

TECH - PAGE 10-52



12

10 | What's New

Keep up with what's new in the world of technology

11 | Tech Watch

The latest in tech regarding security, tech launches, and new apps

18 | LevelUp - Cloud Storage

The best tips and tricks that will help you take your cloud storage game to the next level!

22 | Reviews

The latest gadgets put through their paces

42 | What is VESA ClearMR?

A look into what is VESA ClearMR certification and logo program

44 | From novelty to necessity

We look back into the evolution of TWS earbuds, with an expert from Sony sharing insights about the whole journey

48 | Air purifying helmets

We explore the insides of this latest innovation

AND MORE

CULTURE - PAGE 53-56**54****53 | What's New?**

Every culture news that you should know about. Did you know that Instagram is working on a new tipping feature?

54 | Careers

We look into the world of Foley Artists and guide you through the process of how you can be one yourself!

56 | Boo-Man!

Boo-Man complains about the latest and greatest phone from Apple, the iPhone 14 Pro Max that was launched during their 'Far Out' event on September 7

ALT - PAGE 71-80**74****71 | What's New**

Latest news from the world of pop culture

72 | Back Talk

Interviews with the top brass of Harman and POCO India

74 | DGT

We check out cool gadgets, review some, and give you insights

80 | Back Byte

Compilation of some of the best memes we found

**ON THE eDVD****TECH****Featured Distros**

- KDE neon
- Linuxfx
- SpiralLinux
- CRUX
- Extix
- IPFire

Cloud Storage Managers

- ownCloud Image
- Pydio Cells
- Ceph
- and more...

SCI**Lectures**

- The Biggest Ideas in the Universe with Neil deGrasse Tyson
- Advanced Algorithms
- Introduction to Human Behavioral Biology by Stanford
- Introduction to the Human Brain and more...

Essentials

- 7Zip
- Adobe Acrobat Reader
- Avidemux
- Calibre
- Chrome
- CPU-Z
- Deluge
- Discord
- EasyBCD
- FFmpeg
- File Splitter and Joiner
- Firefox
- Foxit Reader
- Free Download Manager
- Free OCR
- Handbrake
- HDD Low Level Format Tool
- IrfanView
- K-Lite Codec Pack
- LibreOffice
- Mouse Recorder Premium
- Notepad++
- Opera
- PeaZip
- Power Defragmenter
- Q-Dir
- qBittorrent
- Skype
- SpeedFan Image

CULT**Audiobooks**

- The Golden Windmill and Other Stories
- The Red Laugh
- A Hedge Fence
- The Ear In The Wall
- and more...

ALT**Movies**

- Teenagers from outer space
- Zontar: The Thing From Venus
- Voyage to the Prehistoric Planet
- and more...

SCIENCE - PAGE 57-61**60****57 | What's New?**

Get to know the latest news from the world of science

58 | Infoporn

We take a deep dive into the effects that the modern lifestyle is having on the human brain

60 | Space Age

The space rocks that wiped out the dino population are now helping us discover new avenues of living in space

SKOAR! - PAGE 81-96**88****84 | Pheachur**

A blast from the past of the PS2 games that sent chills down our spine

88 | Kuvah

Our nostalgia trip continues as we look back at the disappearing tribe of AA games

92 | Reevu

We played Saints Row and here is all that we found out

AND MORE

email



EDITORIAL

Editor-in-Chief **Robert Sovereign-Smith**
 Executive Editor **Jayesh Shinde**
 Managing Editor **Mithun Mohandas**
 Deputy Features Editor **Satvik Pandey**
 News Editor **Andrew Lu**
 News Writer **Vasan G**
 Undercover Writer & Gadget Freak **Agent 001**
 Chief Complainier & Proud Pessimist **Boo-Man**



TEST CENTRE

Head of Test Centre **Mithun Mohandas**
 Asst. Editor (Reviews) **Sushant Talwar**
 Smartphones **Dhriti Datta, Siddharth Chauhan**
 Gaming Peripherals **Manish Rajesh**
 Laptops **Florence George**



BRAND

Vice President **Soham Raninga**
 Brand Manager **Nikita Sengar**
 Custom Content **Shrey Pacheco, Deepak Singh, Neha Singh**



DESIGN

Sr. Art Directors **Anil VK, Shokeen Saifi**
 Associate Art Director **Baiju NV**
 Sr. UI UX Designer **Nikhil Wahal**



VIDEO

General Manager, Video Solutions **Aprvra Chandola**
 Producer **Sunil Sharma**
 Assistant Editor - Digit Hindi Videos **Krishna Sharma**
 Senior Cameraman **Rajkishore Baitha**
 Cameraman & Editor **Prateek Khatri**
 Senior Video Editor **Girish Bhatt, Sunil Kumar**
 Video Editor **Varun Rao**
 Multimedia Producer **Prakrit Dhondiyal, Ali Akbar**
 Merchant, Saptharishi Ananthanarayanan



PRODUCTION AND LOGISTICS

Senior Manager - Production **Rakesh Upadhyay**
 Senior Manager - Operations **Mahendra Kumar Singh**
 Executive - Market Development **Mohd. Nadeem Ansari**



MARKET DEVELOPMENT

Head - Market Development **Samir Mehta**
 Senior Managers - Market Development
Jayanta Bhattacharyya, Norbert Joseph



READER SERVICES

Senior Executive - Reader Services **Sudhir Patel**
[+91-22-67899678 / help@digit.in](https://digit.in/67899678)



TO ADVERTISE

EMAIL: sales@digit.in

NORTH: **Mayank Sharma**
 Mobile: **+91-8800661912**

EAST & WEST: **Suvarna Shringarpure**
 Mobile: **+91-93249 28247**

SOUTH: **Sudhir Renake**
 Mobile: **+91-99869 00403**



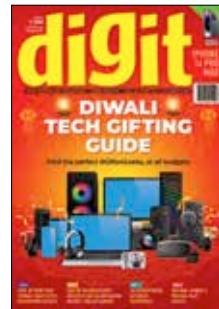
PRODUCTS REVIEWED THIS MONTH

BAZAAR: AMD Ryzen 9 7950X |
 Oppo Enco Buds 2 | Cosmin Byte Equinox Kronos | OnePlus Nord Buds CE |
 Neumann NDH 30 | Sony WH-1000XM5 |
 iPhone 14 Pro Max | Poco M5 | Lenovo Yoga 9i |
 Sony Bravia XR A80K



ADVERTISER INDEX

Brand	Page No.
Samsung	Inside front cover
TP-Link.....	Inside back cover
Seagate	Back cover
Bajaj Auto	02-03



COVER DESIGN: ANIL VK



HELP!

For copy-related issues, delivery status or any other complaints regarding our service, write to help@digit.in or call **+91-22-678 99 678**



SUBSCRIBE

Subscribe to India's #1 Technology Magazine, and save money. Visit www.digit.in/subscribe or email us at help@digit.in



PRODUCT TESTING

Want your product reviewed? Contact our Test Center at testcenter@digit.in or call **+91-22-678 99 708**



NEWS & PRODUCT LAUNCHES

Send the latest launch news and press releases about your product to pressrelease@digit.in



ENDORSEMENTS / REPRINTS

Want to order article or book reprints, or use our logos? Get the requisite permissions by contacting us at reprint@digit.in



CAREERS

Want to work for Digit? Send us your resume to [careers@digit.in](mailtocareers@digit.in)

DISCLAIMER

For every Digit contest, there will be only one winner, unless specified otherwise. In the event of a dispute, the Editor's decision shall be final.

"We do not endorse or recommend any product or service advertised in the magazine, as we hold no control over advertisements. The advertisement's in this magazine are for information purposes only. We do not, expressly or impliedly, warrant or assume any liability or responsibility for the quality, accuracy, completeness, legality, reliability, usefulness or claims of any product or service advertised in the magazine. Our readers are strongly advised to carry out their own independent assessment of any product or services advertised in the magazine."

Published and printed by Vikas Gupta

for and on behalf of the owners,

9.9 Group Private Limited. Published at 121, Patpargang, Mayur Vihar Ph.I, Near Mandir Masjid, Delhi-110091 and printed by him at International Print-O-Pack Ltd., C-4 to C-11 Housing Complex, Phase-II Extn., NOIDA-201306 (U.P.).

Editor: Vikas Gupta.

INTERACT WITH TEAM DIGIT



<https://digit.in/twtr>



<https://digit.in/fb>



<https://digit.in/yt>



<https://digit.in/forum>



<https://digit.in/insta>



<https://digit.in/skoar>

**Nothing to launch Ear (Stick)**

Nothing has announced to launch of Ear (Stick) with a transparent semi-in-ear design on October 26. <https://digit.in/oct22-53>

**What will Apple do now?**

The European Union has made USB-C charger mandatory for all devices including Apple iPhones. <https://digit.in/oct22-55>



>> FEEDBACK FOR THE SEPTEMBER 2022 ISSUE

Hey guys! Just wanted to let you guys know that the new kind of paper you guys started using this month doesn't feel that good in my opinion. I would kindly suggest you guys to switch to the previous one unless there were any other drawbacks with that material. Thank you! Follow up - I would like to take back

Send feedback to magazine@digit.in | join us on telegram - t.me/digitgeek | or on discord - discord.gg/mYD8Xvt

the suggestion about the paper quality as upon more use I have realized it is of the same quality. -Anonymous

Hello Anonymous person, We always appreciate our readers writing in with their suggestions. Thank you so much! Happy reading :-)

-Satvik

recall correctly). Third, Most of the tips in your magazine are for macOS and Windows, it would be better if there were more content related to Linux in your magazine. I hope these issues are fixed in the next issue. Thank you!

-Ritabrata Das

Hey Ritabrata, Thank you so much for writing in with all your suggestions! Starting with the pages, while choosing our paper, we try to ensure a good balance between colour reproduction and readability. However, if we find a better option, we'll definitely bring it in. As for the magazine content and the poster, the story remains the same. We will, try and include more Linux-related content. This month we have a poster from NASA that we hope you'd like. Happy reading!

-Satvik

Letter of the Month

Hi, I have been reading your magazine since February 2019, and I have liked all the FastTracks, tech reviews, and science-related articles. I have a few requests that I think would make the magazine better. First, please print the pages of your magazine to be less glossy. It's tough to read in direct sunlight. Second, I like the posters I get with your magazine every month, could you please also include some science-related posters in your magazine? Like the "Kepler-16b" that was included in your magazine several months ago(if I

**digit diary**

If you are ever curious about what the **Digit gang is up to**, this is the place to get all the inside info. From the **latest game we're obsessing about** to the newest intern we're driving up the wall – it's all here folks.

D a Vinci. Kepler. Einstein. Huygens. Galileo. And several other famous scientists who have spent so much time studying optics have never thought of the simplest explanation: Light roshni hai. Team Digit as a whole was dragged clawing and screaming into a movie theatre by Manish and Prakrit this month. And no words can describe the experience of watching Brahmastra (which is why we skipped the movie review entirely). You may either find your button, or you won't. In other news, Mithun visited a top secret location (one we have yet to uncover) in the Mediterranean while Jayesh paid a visit to the Global AI Summit. With two of the high-ranking members of the team on week-long away missions, NERF

pellets have left indelible marks on several office walls and one traumatised Satvik (no animals or gadgets were harmed in this time). The Team also jumped headfirst into live production, doing some video work for Amazon. In the gaming department, the team's reignited some of its obsession with Pokémon Unite, much to Ali's chagrin (he still doesn't get the game) and Satvik's delight in finding a game he can finally play with the team. Mithun also upgraded to an RTX 3080 – an excellent video card that he can continue to not find time to game on. Towards the end of the month, the Cult of Digit indoctrinated a new member. But he hasn't really had a chance to do much. Yet. So more on him next month. Click!

QUOTE OF THE MONTH

"It was an ungodly hour... even the cock wasn't roosting!"

— Ali at 8AM in office

YOU
WIN
MYSTERY GIFT

DOES THIS SECTION
EVEN NEED AN
INTRODUCTION?
FROM COMPUTERS
TO MOBILES, AND
HEADPHONES TO
GPUs, IT'S ALL
HERE...

THIS MONTH IN TECH:
Level Up your Cloud Storage game with these tricks. Then, learn about VESA ClearMR certification, the evolution of wireless earbuds, air purifying helmets and more. Also, check out everything you need to know about Apple's September Event.



Subscribe to iPhones

Tech giant Apple is likely to bring out a monthly iPhone subscription bundle, with a package combining hardware and services like Apple One this year. As per the reports by AppleInsider, it will allow customers to acquire iPhones and other items from Apple for a monthly fee.
<https://dgit.in/Subphone>

WHAT'S NEW

More money for Shorts

YouTube is going to make its short-form video app YouTube Shorts part of its partner programme, that will help millions of creators get a share of the ad money generated in Shorts. The platform is also making it easier for creators who don't qualify for the partner programme, by allowing them to make money via tips, subscriptions, and merchandise sales, as reported by The Verge. To date, YouTube has monetised Shorts via creator funds, shopping and tips. YouTube last year announced a \$100 million fund to begin paying creators who use Shorts on the popular streaming platform. Since its launch, YouTube Shorts has taken off



and is now being watched by over 1.5 billion signed-in users every month with more than 30 billion daily views. The introduction of Shorts to the partner programme will further incentivise creators to use Shorts.

<https://dgit.in/shortmoney>

Parental supervision on Instagram

Meta-owned photo and video-sharing platform Instagram recently rolled out its parental supervision tools in India to help parents get more involved in their teen's experiences on the platform. The platform is also introducing a Family Center, a new place for parents and guardians to access supervision tools and resources from leading experts. "The supervision tools and the



Family Center will add to our efforts on keeping young people safe. Our intention is to strike the right balance for young people's desire for

some autonomy when using Instagram, but also allows for supervision in a way that supports conversations between parents and young people when it is helpful," Natasha Jogi, Head, Public Policy, Instagram, Facebook India (Meta), said in a statement. Hopefully, the tool will manage to find the right balance between freedom and discipline in teens.

<https://dgit.in/InstaPat>



A mini Pixel

Tech giant Google is said to be working on a new Pixel mini smartphone that might come with a small screen. As per a recent report, upcoming Google products are generally spotted in the codebase. In the case of the Pixel Mini, it is yet to be found inside the software.
<https://dgit.in/MiniPixel>



M3 to come with 2nd gen process

As per recent reports, tech giant Apple's upcoming M3 chip for Macs and A17 chip for iPhone 15 Pro models will be manufactured based on Taiwan Semiconductor Manufacturing Company's (TSMC) enhanced 3nm process known as "N3E" next year.
<https://dgit.in/NewM3>



Earphones in the phone

HMD Global, the home of Nokia phones, launched a new 4G feature phone - Nokia 5710 XpressAudio - in India that comes with in-built wireless earbuds. Priced at ₹4,999, the new feature phone will be sold both online and in stores.
<https://dgit.in/5710>

SECURITY WATCH

Google to let people remove personal info directly in Search

Google has started to roll out a new privacy feature that will allow people to directly make a request to remove Search results that contain their personal information. Google's "Results about you" tool, announced during its annual developer conference earlier this year, is now rolling out to some users, reports 9to5Google.



With this new tool, if you find your personal information like home address, email address, phone number or any other information on Google Search, just click on the three-dot overflow menu that appears in the top-right corner of each result. The existing 'About this Result' panel opens with a new "Remove result" option appearing at the bottom of your screen, the report mentioned.

MOBILE WATCH

Google Pixel Fold

Within the first in-development build of Android 13, developers have spotted a detachable Pixel tablet and the rumoured Pixel foldable. The "Felix" foldable houses a 64MP Sony IMX787 primary sensor and a 10.8MP Samsung S5K3J1 telephoto lens on the back. The device could also house an 8MP Sony IMX355 sensor (the same one used by the Pixel 6A) on the inside, as reported by Android Police. The smartphone could fold horizontally like the Samsung Galaxy Z Fold. According to developer Kuba Wojciechowski, Google released the first beta for Android 13 QPR1 beta and with it a lot of updated code. It includes "new camera drivers, revealing some details about their upcoming products. I have found some details about a yet-unknown foldable, another tablet and more," he posted in a tweet. "As of now, we know about two foldable devices from Google - passport and pipit," he said. The first one has been cancelled, but the status of the other one was unknown.



Source: MacRumors

APP WATCH

Koo, India Post partner to drive financial inclusion and literacy

The Indian microblogging website and social media platform, Koo, recently

announced that it has collaborated with India Post Payments Bank or IPPB, a division of India Post, under the Ministry of Communications to drive financial inclusion and literacy. India Post Payments Bank was set up four years ago in 2018 and uses a network of over 1,55,000 post offices across the country. Under this collaboration, the India Post Payments Bank has signed a Memorandum of Understanding or MoU with Koo that aims to bring together the synergies of both Koo and IPPB to drive financial inclusion and literacy amongst the users in tier 2, tier 3 and remote cities and

hinterlands. The Memorandum of Understanding will help in reaching out to a much large customer base and communicate via Koo's unique language communities across the country using Multi-Lingual Koo (MLK) features. India Post Payments Bank's offline reach, coupled with Koo's ability to empower users through digital touchpoints, will ensure communication to users in the widest and remotest areas of India. The collaboration will also include the management of customer relationships for India Post Payments Bank users through Koo's grievance redressal system.

Otternal Life



A habit tracker app that has a number of features baked in that ensure that you are being helped to develop a new, healthy habit. Using this, you can keep track of things like your mood and more.

Qewd



Too many streaming apps on your phone? Qewd solves that exact problem, bringing all your streaming services into one app, letting you manage your queues and playlists and even discover new content to watch.

FM Radio by OneStop Radio



Most phones these days do not come with FM Radio tech baked in. There are some who still enjoy music the old-fashioned way. FM Radio by OneStop radio is for them, with its vast selection of 65,000+ stations.

**IMEI registration now compulsory**

Indian Government mandates registration of IMEI numbers to avoid phone theft
<https://dgit.in/oct22-11>

**Microsoft discontinuing SwiftKey**

Microsoft is ending support for SwiftKey on iOS devices and removing it from Apple Store.
<https://dgit.in/oct22-12>

Apple 'Far Out' Event

Did Apple go far and out enough?

Team Digit | feedback@digit.in

In September 7, during their "Far Out" event, along with the new Apple Watch Series and the new AirPods Pro, Apple announced their latest iPhone 14 line of phones. There had been a lot of rumours doing rounds on the internet about the speculated specifications of these newly launched phones.

All of them were put to rest when the official announcements were made. Some of these were underwhelming. However, there were some announcements that took many by surprise. Let's look at what's new in Apple's latest and best-ever offerings!

New display on iPhones

There were two sides of the coin to look at when it came to the changes to

the display of the new iPhones. While the lower-end, non-Pro iPhones, the iPhone 14 and the iPhone 14 Plus, retained the old and infamous notch from the iPhone 13 and before, the Pro models, the iPhone 14 Pro and the iPhone Pro Max, were presented with refreshed displays.

As speculated, Apple went and ditched the notch on the Pro iPhones this year in favour of a new pill-shaped cut-out, which we at the Digit office are calling, the Morse Code notch. While this new design does free up some real estate, the star of the show here was the Dynamic Island.

We have covered it extensively in our article, so go check that out

here: [LINK](#) Basically, it is a mini-command centre that will morph into small widgets, if needed, giving you information about incoming calls, battery percentage, some music controls, etc. The iPhone 14 Pro and the Pro Max also saw an improvement in the panel that they will be sporting. The new display panels on these iPhones will have 1600 nits of peak HDR brightness and 2000 nits of peak outdoor brightness.

Additionally, there was also the introduction of the always-on display on the Pro iPhones, which Apple executives spent a lot of time talking about. In its essence, it works the same as all other phones, with the only difference being the better battery optimisation by Apple, and selective screen dimming, allowing better reproduction of human skin tones if they are present on the lock screen wallpaper. The cherry on top is ProMotion, which also saw a few improvements. However, much to the dismay of the fans, there was not much added to the displays of the non-Pro iPhones.





Taking new leaps!

Indian-origin researcher-led team has confirmed there's a protective shield around dwarf galaxies. <https://dgit.in/oct22-13>



Netflix personalised gaming

Netflix has announced a new feature that lets players to create an in-game handle for use in games. <https://dgit.in/oct22-14>

Source: Apple

iPhone 14 Pro and Pro Max

Same old tech for the non-Pros

When it came to the processors, there was again a divide clearly visible in the treatment given to the Pro and the non-Pro iPhones. The iPhone 14 Pro and the Pro Max, as announced during the event, would come equipped with Apple's latest and greatest, A16 Bionic chip.

The new A16 Bionic chip sports a 6-core CPU with 2 performance and 4 efficiency cores, a 5-core GPU, and a 16-core Neural Engine. These specs look impressive on paper, and if Apple's claims are anything to go by, this is the "fastest chip ever in a smartphone".

As for the non-Pro iPhones, they retained the last-gen A15 Bionic chip. This is a very interesting move by Apple. Because without a processor upgrade, there's very little for the prospective iPhone 14 buyer to look forward to. If coming from the iPhone 13, then we don't see any point for users to upgrade.

Better photos?

Apple's iPhones are known for their cameras, and the folks at Cupertino understand this very well. That's why they introduced new and improved camera tech on both the Pro and the non-Pro models of the iPhone 14. However, there was much more to talk about when it came to the Pro iPhones compared to their non-Pro brethren.

Both the phones saw the introduction of a new Photonic Engine, which Apple claims will provide a significant improvement in the quality of pictures you take using your iPhones. The front camera also saw improvements in both models, with the introduction of the new TrueDepth camera. It is a 12MP sensor with f/1.9 aperture and is capable of clicking photos in Apple ProRAW, and 4K video recording at 24 fps, 25 fps, 30 fps or 60 fps, along with Cinematic mode up to 4K HDR at 30 fps.

When coming to the upgrades to the camera system in the Pro models, we saw the introduction of a new mammoth 48MP main camera. The camera system on the Pro iPhones now comes with 4 zoom options. These were – 0.5x, 1x, 2x, and 3x

zoom. There was also the introduction of the Action mode, which would provide users with better stabilisation when shooting videos.

All day battery

One of the biggest talking points for Apple across both the iPhone 14 and the iPhone 14 Pro models was the improved battery life. The executives on stage left no chance to mention that the new phones would have a better battery that would last users all day. Both phones get better battery tech inside, ensuring that their battery life is better than what we have seen before.

Drop messages from the middle of nowhere

When the Apple executives were on stage, presenting the iPhones, no one expected that the Pro models would include satellite communication technology. It was announced that the new iPhones, both the Pro and the non-Pro variants, would sport "Emergency SOS via satellite".

This new feature would allow iPhone 14 users to connect to a satellite in an emergency and establish contact with the first responders. The emergency communications service works using Apple's own messaging protocol, which would compress messages to allow for better communication over the limited bandwidth of the connection to satellites.

Source: Apple

iPhone 14 and iPhone 14 Plus

**Nord Watch price leaked**

Leaked images of the new OnePlus Nord Watch shows the contents, price, and what the device itself. <https://digit.in/oct22-15>

**NavIC support for all!**

Indian Government wants all smartphones to come with NavIC support by January 2023. <https://digit.in/oct22-16>

To ensure that maximum required information is transferred in the shortest time, Apple has made a set of pre-configured questions that would help the responders to gauge the severity of the situation in the best way possible, in the least amount of time. This would ensure better connectivity for iPhone users in remote areas, should they ever face an adverse situation.

Staying on the topic of connectivity, Apple also revealed that the latest iPhones would come without a sim card slot in the US. This move can be viewed from several different perspectives, with one of them dubbing this the last step before Apple's iPhones go completely port-less. Apple's already been making

Meet iPhone 14 Pro, iPhone 14, Apple Watch Series 8, Apple Watch Ultra, and AirPods Pro. All that and more from the #AppleEvent

iPhone 14

improvements to MagSafe. And, with the EU's USB-C regulation looming and the lightning port being the last remaining slot on the iPhone, it wouldn't be surprising to see Apple introducing a port-less iPhone next year.

There was also the introduction of crash detection tech in the new iPhones. This feature would be triggered in the event of an iPhone user being involved in a car crash or a similarly adverse situation. It would prompt the device to contact the authorities – if needed.

What's the price?

In India, the as per the listings on Apple's web store, the best iPhone



14 starts at ₹79,900. If you are looking to go for the Pro models, then the base phone would set you back by ₹1,29,900.

During the one-and-a-half-hour-long keynote, Apple's executives took half the time talking about iPhones, and a lot more things were discussed. All of those, along with the features that we covered in this article, were put to the test when the iPhones drop into the Digit Test Center. Go and read the full review! (after you are done here)

What was left out?

Every year Apple launches a new series of iPhones. After the launch, each year, they cut down the price of certain devices while outright discontinuing the others, marking the end of their lifecycle. This year too, after the launch of the new iPhone 14 lineup, they discontinued some and cut down the price of the others. So, in this article, we will look at the phones that Apple has pulled off the shelf and the ones that are now retailing for a lesser price.

All of the newly announced products, including the iPhones, came with features that everyone's been harping about on the internet. How-

ever, there were some things in the iPhones that we feel Apple skipped out on. The non-Pro iPhones were the biggest losers. So, here's our list of three key features that we feel should have been there on the iPhone 14 lineup that Apple announced on September 7.

No USB-C

The topic of Apple's resentment to include a USB-C charging and data transfer port has been debated to death. Every year amongst all the leaks, the biggest one remains to be the inclusion of a USB-C port. However, this time around, the hopes were higher than before. Everything pointed towards Apple finally breaking down and ditching their beloved lightning port in favour of the more universally appealing USB-C port.

The most prominent reason was the recent legislation passed by the EU, which would require all personal electronic devices to have a USB-C charging port. Everyone thought that Apple would break down. But they didn't. They went ahead and put in the lightning port, knowing they would soon have to leave that port behind.

The second reason why everyone thought that this year's iPhone lineup would have USB-C was the fact that literally every other handheld computing device that Apple sells, apart from the base model iPad, has a USB-C port. Anyone remotely connected to the industry guessed that Apple might go the iPad route with



Source: Apple



Sneaky Microsoft

Reports suggest that Microsoft Surface Duo could resemble Samsung's newest range of foldable devices. <https://dgit.in/oct22-17>



First 'slidable' display is here

Samsung Display and Intel have created the world's first 17-inch slidable display that slides seamlessly. <https://dgit.in/oct22-18>

the iPhones and ship the Pro models with USB-C while retaining the lightning port on the non-Pro phones.

However, it looks like none of it was enough to push Tim Cook and Co. to include a much-awaited USB-C port in their iPhones. The lightning port is slow in every respect and just old at this point. At this point, given the fact that they already have removed the sim tray in US iPhones, it looks more likely that they will announce a port-less iPhone the next time around.

Where's the ProMotion?

We are talking about the non-Pro iPhone 14 here. Both the iPhone 14 and the iPhone 14 Plus lack the higher refresh rate ProMotion display, which has already been a feature on the Pro models of last year.

In today's market, it is hard to imagine a phone being sold for almost ₹80,000 and still lacking a feature as basic as a high refresh rate screen. It is not like Apple has no clue about high refresh rate displays. They already included it in last year's iPhone 13 Pro models. So, given that they were carrying over the processor, which is clearly capable of handling a high refresh rate panel, they could have very well included at least a 75 Hz display on the non-Pro phones of this year. But they didn't, and no one was impressed by this move.

Why the older chip?

Continuing on the topic of older generation iPhones and the transfer of their tech into the latest gen devices, let's talk about the one thing that Apple did transfer over, which no one wanted. It is the processor.

Chip



A15 Bionic chip

6-core CPU with 2 performance and 4 efficiency cores

5-core GPU

16-core Neural Engine

Source: Apple

Why?

Which iPhone is right for you?



iPhone 14 Pro
The ultimate iPhone.



iPhone 14
A total powerhouse.



iPhone 13
As amazing as ever.



iPhone SE
 Serious power. Serious value.

The non-Pro iPhones this year come equipped with the last-gen A15 Bionic processor, which was launched with the iPhone 13.

No matter how powerful the processor might be, it makes no sense, especially given the pattern iPhones have been following in terms of processor upgrades, for Apple to go with a last-gen processor on a newer device. Well, Apple did it. So anyone looking to upgrade will have to deal with it.

The jury is still out on whether the new base iPhones are worth upgrading to or not. However, on paper, it looks like Apple may have missed the trick with this one. Especially given the other two things that are even more important additions if they would have been included in the new phones.

The outgoing devices

After the launch of the new lineup of iPhone 14 Pro phones, which includes the iPhone 14 Pro along with the 14 Pro Max, Apple has pulled the plug on the Pro line

of phones from the last year. The iPhone 13 Pro and the iPhone 13 Pro Max are no longer available on the Apple store. Alongside the 13 Pro devices, the other outgoing phones from the Apple line-up are the iPhone 11 and the iPhone 12 mini.

Now, the only phones that will be available on Apple's official store, apart from the recently launched devices, are – the iPhone 13, the iPhone 13 mini, iPhone SE (2022), and the iPhone 12. However, if you are still looking to buy these phones, they would still be available online on the websites of major retailers.

Each year the phones are discontinued by Apple because of one simple reason – they are older devices that Apple does not want to make anymore. Sometimes, like with the 12 mini, the sales numbers aren't enough to justify the production. However, for the most part, it's just the end of the cycle for these products.

Older phones for a lesser price

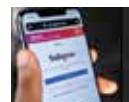
Coming to the price cuts, the iPhone 13 now starts at ₹69,900, the 13 mini starts at ₹64,900, the iPhone SE (2022) starts at ₹49,900, and the iPhone 12 starts at ₹59,900.

The current line-up of devices offers a choice for everyone. If you are in the market for a smaller device, then you have the 13 mini, which holds up well for the price. And, if you are looking for a moderately



Intel unveils 'Raptor Lake'

Intel has unveiled 13th Gen Intel Core "Raptor Lake" processors along with Intel Unison.
<https://digit.in/oct22-19>



Longer Instagram stories

Instagram will now allow videos under 60 seconds as Stories.
<https://digit.in/oct22-20>

priced phone with a larger screen, then you can go for the iPhone 12 and iPhone 13 that are still being sold on Apple's online store.

MORE IN MUSIC - AIRPODS PRO

The 2nd iteration of the popular AirPods Pro is finally here. Alongside



the iPhone 14 lineup and the Apple Watches, Apple also launched the AirPods Pro 2 or AirPods Pro (2nd generation) at the 'Far Out' event. The AirPods Pro 2 are equipped with the brand new Apple H2 chip which allegedly brings better Active Noise Cancellation as well as support for personalised spatial audio. There's also a smarter Transparency mode and the company has made these buds much harder to lose. Here's everything you need to know about the AirPods Pro (2nd generation).

Price and availability

The Apple AirPods Pro (2nd generation) sports a price tag of ₹26,900. The buds will be available for orders on Apple's website starting September 9 and can be purchased in offline stores and e-commerce platforms starting September 23. The AirPods Pro 2 is priced at \$249

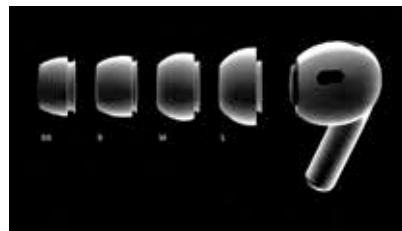


(approximately ₹19,870) in the US, which is the same price as the original AirPods Pro, however, in India, the price has increased.

The original AirPods Pro was launched at ₹24,900 in India back in 2019, so there's a ₹2,000 price hike this time around. Apple has announced that the last-gen AirPods Pro is now priced at ₹19,990 or ₹20,990 with Magsafe.

Features and specifications

No, these are not the stem-less AirPods Pros that some leaks suggested; in fact, the design is near identical to the original AirPods Pros. The AirPods Pro 2 is powered by the latest Apple H2 chip. Apple says that the chip is ready for high-bandwidth connectivity but there's no lossless audio support as some were expecting. The earbuds come packing Dolby Atmos support. You also get personalised spatial audio with head tracking, which can be customised by the user, according to Apple.



Apple has also added a custom high-excursion driver and amplifier that the company claims will deliver better sound quality than before. Apple also claims to offer 2 times the Active Noise Cancellation achieved by the original AirPods Pro on the 2nd-generation successor. This is achieved by the new H2 chip working alongside optimally-placed noise-cancelling microphones and rear vents, as per the company. There's also a new Adaptive Transparency Mode that intelligently minimises loud ambient noises such as sirens or power tools.

The company has added an XS-sized ear tip this time around as well. Users will also get a capacitive touch sensor, alongside the force sensor for

pressure controls, to adjust volume levels by swiping up or down.

If you're prone to losing your earbuds, Apple has added some features on that front as well. Each AirPod can stay a sound individually, so you can easily find them, and there's now a speaker on the case as well that plays a loud sound that helps users find it. The U1 chip is utilised for precise



tracking via Find My which is built into the charging case.

The AirPods Pro 2 also support wear detection via a skin-detection sensor. The earbuds also pack motion-detecting and speech-detecting accelerometers. The AirPods Pro 2 are powered by Bluetooth 5.3 and come with IPX4 sweat and splash resistance.

The new AirPods Pro (2nd generation) offer improved battery life – up to 6 hours via the earbuds alone and up to 30 hours with the charging case. The earphones can be charged via Lightning cable, Qi wireless charging, or MagSafe charging, according to Apple.

IT WAS ABOUT TIME - APPLE WATCH SERIES 8

Apple has launched the Apple Watch Ultra, Series 8 and SE in India. The Apple Watch Ultra is a rugged smartwatch designed to





No Apple October Event

According to Mark Gurman, Apple doesn't have enough products to hold a dedicated event in October. <https://dgit.in/oct22-21>



Three new INZONE headsets

New line of INZONE gaming headsets is to increase the sensory perception and in-game involvement. <https://dgit.in/oct22-22>

FEATURE

withstand extreme conditions with features that are meant to help athletes, extreme sports, water sports and in outdoor adventures. It has a titanium build and the Retina display is surrounded by sapphire glass. Apple has also introduced three new bands, each serving unique purposes for athletes, marathon runners, outdoor enthusiasts, water sports enthusiasts and more.

Meanwhile, the Apple Watch Series 8 shares most of its features with the Watch Ultra and gets a bigger display, temperature sensors, crash detection and low power mode. As for the Apple Watch SE, it offers



the essential Apple Watch experience with a redesigned back case that makes it lightweight and the new S8 dual-core processor that also powers the Ultra and Series 8. All three smartwatches run on watchOS 9.

Apple Watch Ultra

Apple Watch Ultra is priced at ₹89,900 in India with sales commencing from September 23. The Apple Watch Ultra features a 49mm titanium case with a sapphire glass coated Retina display which Apple claims go upto 2000 nits of brightness. There's a new Action button which gives easier access to modes



such as workouts, compass waypoints and more. The Watch Ultra has three microphones which work in tandem with beamforming algorithms to reduce ambient noise and improve call clarity.

Being a rugged smartwatch, it is MIL-STD-810H certified making it withstand temperatures from -20° C to 55° C in any range of extreme conditions. It's also WR100 water resistant and is EN13319 certified which is a standard certification given to devices used by sea divers.

Apple has also introduced three new bands designed for the Watch Ultra that each serves unique purposes. There's the Trail Loop band which has a soft woven texture, the Alpine Loop band which uses a titanium G-hook fastener and the Ocean band with spring loaded loop and a titanium buckle.

Apple Watch Series 8

The Apple Watch Series 8 starts at ₹45,900 in India and went on sale on September 16 in India. The Apple Watch Series 8 is available in multiple colours and cases.

The aluminium 41mm case with sport band variant is priced at ₹45,900 (GPS) and ₹55,900 (GPS+Cellular), and ₹48,900 (GPS) and ₹58,900 (GPS+Cellular) for the 45mm case.

The stainless steel 41mm case is priced at ₹74,900 (GPS+Cellular) while the 45mm case is priced at ₹79,900 (GPS+Cellular). Additionally, the stainless steel 41mm case with Milanese Loop band is priced at ₹79,900 (GPS+Cellular) while the 45mm case size is priced at ₹84,900 (GPS+Cellular). The Apple Watch Series 8 is available in 41mm and

45mm sizes in aluminium and stainless steel finishes. It features a new temperature sensor that keeps a track of body temperature via two built-in sensors. There's a crash detection feature that Apple hopes its users never have to use but it utilises the gyroscope and accelerometer to detect and dial emergency services. Apple has also introduced a low power mode



which it claims allows the Series 8 to last for over 36 hours at the cost of some features being unavailable for the duration.

Apple Watch SE

The Apple Watch SE is priced starting at ₹29,900 for the 40mm case with GPS and ₹34,900 for GPS+Cellular connectivity. The 44mm case starts at ₹32,900 (GPS) and ₹37,900 (GPS+Cellular). The



Apple Watch SE offers the essential feature set that you'd expect from an Apple Watch. It's powered by the same S8 processor which is also on the Ultra and Series 8 that Apple claims make it 20% faster than previous generations. It also gets the new crash detection feature and while it is the same design as the last time, the back case has been redesigned which makes it lighter than before. **d**



levelUp

A COLLECTION OF PRO TIPS FOR EVERYTHING. Without being limited to a particular topic, these tips are from popular software, to coding, to browsers, search, storage rules, password rules, mobile device hacks, bios cracking, tweaks explained and everything tech under the sun.



Tips to improve your cloud storage game

Manage cloud storage like an ace

Vaidyanathan S. |
feedback@digit.in

CLOUD COMPUTING, TODAY, IS EXTREMELY UBIQUITOUS.

You'd be hard-pressed to find a service that doesn't use the cloud in some form or the other. The cloud occupies the centre stage of most modern computing needs.

Though it serves a myriad of purposes, storage and retrieval on demand is one of the cloud's primary use cases. Whether you are on iOS, Android, Windows, Mac, or Linux, chances are that you are already using a cloud service. Most cloud storage sync happens in the background with minimal user intervention.

tion. However, with limited storage reserves, things can quickly get out of hand forcing you to cough up more for added storage. In this article, we will explore a few tips that make you an ace in managing files in your cloud.

FIND OUT WHAT'S GOBBLING UP ALL THE SPACE

With most default setups, modern operating systems often backup a lot of stuff to the cloud on their own. Over time, these can eat away substantial amounts of storage. So, here's what you can do:

Check your current storage status. Most storage managers will show an infographic of what's taking up space and allow you to manage individual categories such as photos, mail, and documents.

They often also offer options to perform an automatic cleanup based on certain criteria, such as photos older than a year, or emails with large attachments, etc.

CLEAR OLD MESSAGES

Though individual messages hardly cause any blip in your storage metre's radar, these can quickly add up overtime. Especially if your messages contain attachments, emojis, or high-res photos. Fortunately, there are few ways to keep your messaging activity more organised and leaner.

Browse through your messages collection and see what all can be trashed. Take a screenshot of the important ones and delete the ones you don't need. On iOS, messages can be easily triaged

by a simple swipe to the left. You can also delete individual attachments you don't need.

If you need more functionality than the default Android Messaging app, SMS Organizer from Microsoft is an alternative that offers more features and control over SMS backups to OneDrive.

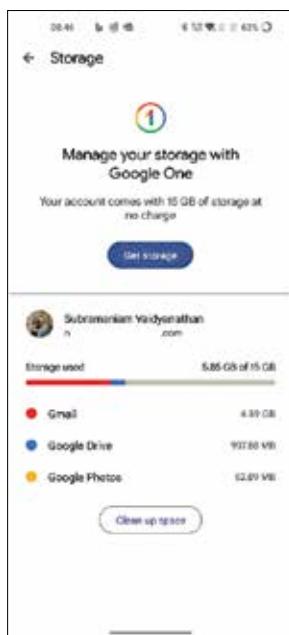
Other culprits include IM apps such as WhatsApp, Telegram, and Signal. Telegram is entirely cloud-based, so you need not have any file stored on device unless needed.

Signal uses on-device encryption, which means all files are only locally available. WhatsApp does both local and cloud backup. WhatsApp is often the de facto IM for most and users exchange a barrage of multimedia every hour. WhatsApp backups that contain media quickly take up valuable on-device and cloud storage space.

In WhatsApp, you can choose not to save multimedia to your phone's gallery if you want to save some space on your device. If you're backing up to the cloud, it is probably a good idea to save large video files elsewhere and back up just messages and photos. To do that, head over to WhatsApp settings > Chats > Chat backup and toggle the "Include videos" option to off.

BE PHOTO-WISE

Millions of photos are uploaded by the hour on social media, which means that your phone quickly gets burdened with both photos you take and those you

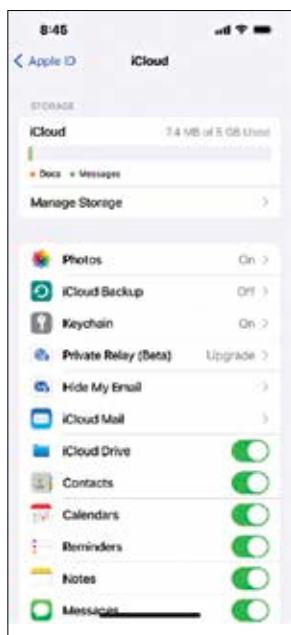


download. Most devices are configured to take regular cloud backups of your phone's gallery when you initially setup the device. While this helps with having timely backups, it can quickly take up a great deal of your limited cloud storage. There are a few ways to circumvent this:

Use the default resolution for regular snaps — Smartphones advertise up to 108 MP cameras these days, but often these are binned 12 MP images. Regular photos in good ambient light can easily make do with just the 12 MP or a corresponding mode. This can save a good deal of space both on-device and in the cloud.

Compress photos to save space — If you have already captured a high-resolution image, you may have enough scope for compression to a lower resolution without losing much detail. Many apps that automatically backup photos allow you to compress and upload them at lower quality to save on space.

Delete the "Recently Deleted" — Merely deleting local or cloud files may not be enough to recover space.



Many photo and cloud apps often come with a recycle bin that store your trashed files till a definite period. If you find that your storage is not increasing despite deleting data, chances are that they are being sent to the Recently Deleted area. Check out the Recently Deleted section and select the ones you want to permanently erase.



REDUCE BACKUP SIZE

If all you want to keep is one good-looking selfie out of 99 others that didn't appeal, it's a good idea to delete those. Also, services such as Google Photos and OneDrive allow you to automatically backup your device's Camera Roll but also offer additionally flexibility in choosing other folders, so you can prevent all those memes received in WhatsApp from taking up valuable cloud space.

Depending on the service, your cloud storage provider may also offer to compress files and decompress them on-demand. This can come at a cost, however. A better idea would be to compress the files yourself before uploading

them to the cloud. This can be useful for storing files that are not as frequently accessed or for archival purposes. Do note that most consumer clouds do not automatically decompress the files for viewing.

If you are a professional user running Google Cloud Services or Amazon AWS, you may be able to zip the files before uploading using the command line or console. Those using Microsoft Azure can compress files using Azure's CDN.



PAY-AS-YOU-GO CLOUDS FOR THE ENTERPRISE

In an enterprise, costs need to scale depending on requirement. Many organisations find it cheaper to deploy applications in operating systems hosted in the cloud than running them on-premise. For all these use cases, a typical cloud subscription just doesn't cut it. Enter pay-as-you-go cloud computing.

Major hyperscale cloud service providers such as Microsoft Azure, Google Cloud Platform, Amazon Elastic Compute Cloud (EC2), part of Amazon Web Services (AWS), IBM Cloud, etc. all offer pay-as-you-go solutions.

These providers also offer a free pricing tier and free credits that organisations can use to evaluate their needs before purchasing further storage or running time. AWS has been a formidable player in this segment, but Microsoft isn't too far behind. Google and IBM are catching up to these in terms of regional availability and marketshare.

These services also offer features such as object storage, which streaming services like Spotify use to deliver data on the fly. Other offered services include built-in artificial intel-

ligence, blockchain SDKs, a host of developer tools, infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), and more. Offloading development stacks to the cloud also frees up precious organisational resources.

DELETE UNWANTED DEVICE AND APP BACKUPS

With a plethora of new smartphones and other computing devices being released almost every fortnight, users often find themselves roaming between devices and consequently, an increasing number of device backups.

If you've been on a consistent device upgrade cycle, chances are that there is probably a device backup of that iPhone 7 of yore that can occupy significant space. You probably won't be needing that if you aren't using that device anymore, so it makes sense to delete the device backup and reclaim valuable space. Also, apps such as WhatsApp can consistently back up changes to the cloud and if you have a ton of videos and multimedia, this can run into many GBs.

If cloud storage is proving to be too limiting, you can also look at other offline or personal cloud setups, which we will see next.

BACKUP THE CLOUD

Even the best services suffer downtimes. We've been seeing several instances of Cloudflare and other services suffering blackouts due to various reasons, all of which can impact access to your cloud data at the most crucial of times. Redundancy is important not only for offline storage but also in the cloud. Therefore, it is important to

have a copy of your most vital data stored elsewhere as a backup. Most users these days will inevitably end up having a couple of email accounts — such as Gmail and Outlook, for example — which also enable access to their respective cloud drives.

So, even if your GDrive access is down for some reason, you can still access a backup copy from your OneDrive account.

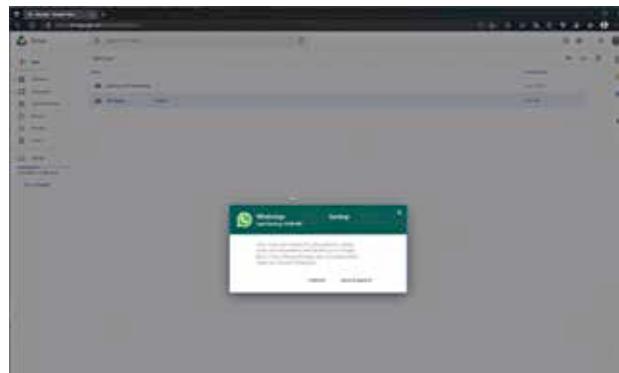
UNIFY CLOUD STORAGE ACCESS

With a major chunk of our computing needs being taken online, the reliance on the cloud has never been higher. We often find ourselves subscribing to several cloud providers and managing these can quickly become frustrating. This is where some consolidation helps.

Services such as ODrive, Storage Made Easy, Multi-Cloud, Air Cluster, and more offer to consolidate all your cloud storage accounts, such as GDrive, OneDrive, Dropbox, Box, Mega, etc. into one unified interface with a single logon as a combined storage pool. You can drag and drop files into this storage pool and decide which cloud those files should land in. Many of these services also allow for collaboration, transferring data from one cloud to another, and even advanced encryption depending on the pricing tier chosen. Popular file transfer apps such as FileZilla Pro also offer the ability to integrate various cloud providers apart from the usual FTP and sFTP sites, so you can manage everything from a single interface.

UNSYNC TO SAVE LOCAL STORAGE

Those heavily invested into cloud services may prefer to



Device and app backups in Google Drive

go with lesser offline storage. But if you keep all files in sync, your local storage will fill up soon as well. If you are using Windows and use OneDrive, a nifty way around this is to download files on demand and unsync them when the job is done. Check your OneDrive settings in case you don't see this option already.

Other providers may offer a similar feature as well. For example, Google Drive has a Stream files option pretty much mimics OneDrive's Files On-Demand functionality.

CREATE YOUR OWN CLOUD

All said and done, the cloud storage solutions we often use belong to third-parties, and most of them have some clause in their usage terms that give them rights to look at your data to ensure you aren't misusing their service. Although the services themselves often do not have any bandwidth caps, accessing them from your network and syncing them to tens of devices can be quite slow.

Those who are extremely privacy and speed conscious would do best with a homebrew cloud solution. The answer lies in creating your own FTP server.

The detailed procedure to create one merits a full article of its own. But suffice to say, creating your own FTP solu-

tion is not that hard. All you need is a configurable router, a computer running Windows XP or later/macOS 10.13.2 or later/Linux, FileZilla Server, and an FTP/sFTP client for your smartphone or tablet.

Designate a folder on your computer's storage or NAS that will serve as a shared folder. Install FileZilla Server, add the required shared folders to sync, give appropriate read/write permissions, and set up a username and password. You may need to allow exception for FileZilla in the Windows or your OS's firewall.

earlier configured on the server. Your personal cloud is almost setup. However, this works only when the server and clients are on the same network. If you want to have access to these files while on the move, you need to configure your router's firewall to allow incoming connections to the FTP port configured in the server or setup what is known as a demilitarized zone (DMZ) to direct all incoming packets to the server computer.

Some of the more advanced routers with USB ports also allow you to connect a USB storage drive and use that as a networked cloud drive, an iTunes server, or a media server. Several OEMs even offer their own solutions that sync the USB storage attached to the router with a cloud service.

While the concept of a local FTP cloud is enticing, some of the advantages diminish when you access files from outside your network. Also, you should factor

∞	✓	📁	odrive
File	Home	Share	View
←	→	⬆	⬇
∞	▶	odrive	⟳
		🔍 Search odrive	?
Amazon	9/11/2020 4:44 PM	File folder	
Dropbox	9/11/2020 4:45 PM	File folder	
Dropbox (School PTA)	9/11/2020 4:45 PM	File folder	
Facebook	9/11/2020 4:44 PM	File folder	
Google Drive (Personal)	9/11/2020 4:44 PM	File folder	
Google Drive (Work)	9/11/2020 4:44 PM	File folder	
Slack (Volunteering)	9/11/2020 4:45 PM	File folder	
Slack (Work)	9/11/2020 4:44 PM	File folder	
8 items			☰

Note your computer's IP address and try to access the same via an FTP/sFTP client from your smartphone/tablet/other devices. The client should have automatic sync options to and from a designated folder on the client to one that was

in the costs of keeping your server PC running. They are also not hassle-free when it comes to giving others access to your files. An ideal setup would be a combination of private and public clouds that help you stay in sync with your data wherever you go. 

digit TOP 3

RECOMMENDED BUYS

From wireless headphones to 3D printers, here's what we recommend for your next purchase.



Android Smartphones

Samsung Galaxy S22 Ultra.....	₹99,999
Vivo X80 Pro	₹82,999
Samsung Galaxy Z Fold 4	₹1,54,999



Wireless Headphones

Sony WH-1000XM5	₹34,990
Apple AirPods Max	₹59,900
Bose NC 700	₹34,500



Smartwatch under ₹5,000

Realme Watch S.....	₹4,999
Realme Watch 2 Pro.....	₹4,999
Noise ColorFit Ultra.....	₹4,499



Gaming Keyboards

Corsair K100 RGB Optical	₹38,500
SteelSeries Apex Pro TKL.....	₹26,990
Razer Huntsman Elite	₹27,370



Laptop Powerbanks

Mi 20000 mAh Hypersonic.....	₹3,999
Volta multipurpose 21000 mAh.....	₹7,299
MIMO Binori 32000 mAh.....	₹1,399



WiFi Modems

Linksys X6200-UK.....	₹13,999
Netgear N600.....	₹4,999
Netlink WiFi HG323RGW.....	₹2,585



40-inch Smart TVs

Sony Bravia 43X8000H	₹57,522
Samsung The Serif	₹59,990
Sony Bravia 43X7400H.....	₹51,999



3D Printers

Snapmaker 2.0 (A150)	₹1,34,999
Pratham Mini	₹1,35,000
XYZ da Vinci 1.0 Pro	₹94,999



Gaming Laptops

MSI Titan GT77-12UHS	₹4,99,990
Alienware x17 R2	₹3,89,990
Acer Predator Triton 500 SE	N/A
PT516-52s.....	₹3,00,000



Graphics Cards

GeForce RTX 4090	N/A
GeForce RTX 4080 16GB	N/A
GeForce RTX 4080 12GB	N/A

reviews

THE LATEST PRODUCTS
REVIEWED FOR YOU

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

10	to	30	Extremely poor product. Keep away!
31	to	50	Strictly OK. Not recommended
51	to	70	Decent product. Go for it, but there may be better products out there.
71	to	90	Very good product. Highly recommended.
91	to	100	Ground-breaking product. We've never seen anything like it before. A definite must buy!

INSIDE



25

Cosmic Byte
Equinox Kronos



29

iPhone 14 Pro
Max



28

Sony WH-
1000XM5



26

OnePlus Nord
Buds CE

PLUS

24 Oppo Enco Buds 2

27 Neumann NDH 30

30 Sony Bravia XR65K

31 Poco M5

32 Lenovo Yoga 9i

**Block screenshots in WhatsApp**

It looks like WhatsApp is finally getting a much awaited screenshot blocking feature. <https://dgit.in/oct22-33>

**Twitter Edit feature is here**

Twitter's Edit feature has finally made it to the app. It is only available to Twitter Blue members. <https://dgit.in/oct22-34>

AMD Ryzen 9 7950X Desktop Processor

Knocking it out of the park, yet again

A

MD Ryzen 7950X, like its predecessor, the AMD Ryzen 9 5950X, is a 16-Core /

32-Thread processor featuring a host of new improvements including a new microarchitecture in the form of AMD Zen 4, much higher clock speeds, a new AM5 LGA socket, and much more. With so many high-impact changes over the Ryzen 5000 series processors, the new AMD Ryzen 7000 series of processors has plenty of things that can really push it over the edge but it has an equal number of things that can go wrong. Hopefully, that's not the case.

SPECIFICATIONS

Moving to the more power-efficient TSMC 5nm process is going to help the Ryzen 7000 quite a bit on the power efficiency front. The Ryzen 7000 series can eke out up to 49 per cent more performance on a 16-Core processor compared to the Ryzen 5000 series at the same socket power and core count. And if the performance were to be normalised, then the Ryzen 7000 series can manage to do so while consuming 62 per cent less power. Obviously, these improvements are not just because of the shift to the TSMC 5nm process but also because of all the architectural improvements. The AMD Ryzen 9 7950X has a base clock speed of 4.5 GHz and a Turbo clock speed of 5.7 GHz. And this is without an improvement to the Precision Boost algorithm.

As for the other specifications, the L3 Cache per core has remained the same but the L2 Cache has been doubled and is private to each core. L1 Cache is also the same with 32K for the Instructions and 32K for data. The TDP has been raised to 170W compared to the 5950X which was designed for 105W. Always check the peak parameters of the motherboard's VRM before you decide on



buying one. Lastly, all processors falling under the Ryzen 7000 family will have inbuilt graphics capabilities and will get RDNA 2 IGP Cores in all four processors.

PERFORMANCE

Starting with Cinebench R23 which has been the mainstay of most CPU benchmarks. The AMD Ryzen 9 7950X clearly beat the Intel Core i9-12900K in both the single-threaded as well as the multi-threaded benchmarks with scores of 1997 and 14922, respectively. The 12900K had scored 1971 and 25975, respectively. In Blender, we saw the 7950X rendering the test scenes way faster than the 12900K with a performance difference of 67.77 per cent across three tests. Moving to the IGP and the ISA of the CPUs. Intel has several accelerators leveraging their Xe GPU architecture and a lot of algorithms are already quite optimised for it. As a result, we see the 12900K doing much better than the Ryzen 9 7950X in the AI benchmark. Talking about RAM, Intel has XMP memory profiles and now AMD has EXPO. To see how the memory controllers handle the processor without either profiles being set, we manually set the modules to 5200 MT/s and the

sub-timings were left to the board to auto-configure. What we observed was that when the modules are tuned, both processors manage to get about 65 ms as the memory latency. However, when left to the board to auto-configure, the AMD system got a slightly lower latency. From the 1080p gaming benchmarks, we saw that it was at par with the 12900K in most benchmarks with the exception of one game — Far Cry 6 — where the Intel processor maintained a slight lead. As for HITMAN 3 and Shadow of the Tomb Raider, the Zen 4 processor seems to have gained a significant lead of up to 40 FPS. During a sustained 10 min heavy workload, the CPU Package power averaged around 210 W while hitting a peak of 223 W. In the same heavy load test, we also logged the temperature data. The Ryzen



PERFORMANCE..... 90
VALUE FOR MONEY.... 75

being a 16-Core processor has two Core Complex Dies (CCD) and they both logged slightly different temperatures with CCD1 averaging a little higher at 93.4 degrees Celsius while CCD2 averaged at 87.4 degrees Celsius. All cores put together, averaged

at 85 degrees Celsius. As for peak temperatures, CCD1 hit 96.4 degrees and CCD2 hit 91.4 degrees, respectively.

VERDICT

The AMD Ryzen 9 7950X with its new Zen 4 architecture easily bests the Intel Core i9-12900K in most benchmarks. Even in gaming, it equals or bests the 12900K in most benchmarks at 1080p. The inbuilt RDNA 2 graphics cores have their work cut out for them to match Intel's Xe in terms of AI workloads. For the price of approximately ₹70,000, the AMD Ryzen 9 7950X is one of the prime candidates for an enthusiast gaming and content creation rig.

—Mithun Mohandas

SPECIFICATIONS

CORES: 16 | **THREADS:** 32 | **BASE CLOCK:** 4.5 GHz | **BOOST CLOCK:** 5.7 GHz | **PROCESS NODE:** 5nm | **L3 CACHE:** 64 MB | **L2 CACHE:** 512 KB per core | **TDP:** 170 W.

CONTACT

AMD | PHONE: NA | EMAIL: support.amd.com | WEBSITE: www.amd.com

**PS5 Jailbroken!**

Sony's newest console has been jailbroken. However, the new exploit is still in nascent stages.
<https://digit.in/oct22-35>

**A hand of friendship**

Google Messages is rolling out reactions for SMS compatible with Apple iMessage.
<https://digit.in/oct22-36>

Oppo Enco Buds2

Decent budget option, but not the best

Back in September 2021, when we wrote our Oppo Enco Buds review, we said that "entry-level truly wireless earphones are improving at a meteoric rate". Cut to August 2022, when its successor – the Oppo Enco Buds2 has launched in the market – the statement rings more true than ever. The market is rife with competition though, from companies such as Realme, OnePlus, Xiaomi, boAt, and others offering similarly-priced yet feature-rich TWS. So, does the Oppo Enco Buds2 succeed or is the grass greener elsewhere? Let's find out!

BUILD AND FIT

Oppo has gone ahead and revamped the design of its budget TWS offering this year sporting a vastly different design than the Oppo Enco Buds with its pill-shaped case and stem-less buds. The new circular charging case comes with subtle Oppo branding in the centre. The buds come in only one colour – black. The case and the buds sport a matte finish which feels premium for the price. It has a glossy black strip running across the circumference of the case. We would have liked a few more colour options though. It has a slim profile and is extremely easy to open one-handed but the hinge doesn't feel very robust. Opening the case reveals a black and pastel blue dual-tone design which looks pretty sweet. The Enco Buds 2 have long stems with responsive touch sensors embedded on the top of the stem. The fit of these earbuds is fantastic, and even with the addition of stems, Oppo has managed to keep the weight down to 4 g.

FEATURES

Priced under ₹2K, the Oppo Enco Buds2 have an array of features, however, some of these are reserved for users with Oppo phones only. The earbuds can leverage the HeyMelody app to check battery levels, perform



firmware updates, and customise controls. Users of ColorOS 11.0+ phones can find these options in the phone's settings itself. The earbuds also come packing other features such as Game Mode (which lowers latency down to 94 ms) and IPX4 splash and sweat resistance. However, Oppo has skimped out on dust ingress protection. You also get mono earbud usage, Bluetooth v5.2, and voice assistant support.

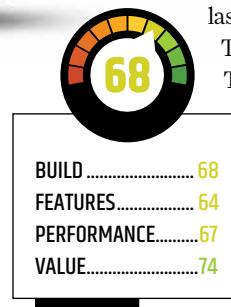
PERFORMANCE

Equipped with 10 mm dynamic titanium drivers, the earbuds come with a pleasant enough bass-boosted sound similar to the Realme Buds Air 3 Neo (with Balanced EQ preset) and the OG Enco Buds. The earbuds' default EQ preset has a warm quality with boosted and punchy bass and well-produced mids. The earbuds come with Dolby Atmos support but the soundstage is very narrow. The highs are slightly muted post the 4 kHz mark and that means that instruments such as cymbals and hi-hats will be a bit shrouded in the mix. The bass can get a bit overwhelming at times, and the details in the mids do get slightly

drowned due to auditory masking but we are just nitpicking here. At ₹1,799, this is perfectly good audio quality that most of the general public will enjoy. These buds don't come with Active Noise Cancellation, so you will have to rely on passive isolation which is decent enough and subdues ambient sounds. The microphone on these buds is pretty decent; they are improved when compared to the original Enco Buds due to the stem design which brings the mics closer to the mouth. The buds come with AI Noise Cancellation for calls based on a DNN (deep neural network) but we still found that external sounds were picked up.

BATTERY LIFE

In our battery tests, the earbuds lasted for 6 hours and 50 minutes. This was at 50 per cent volume. The charging case provides 3 extra charges with ease. There's also fast charging, so 10 minutes of charging time will provide an hour's worth of playback.

**VERDICT**

At ₹1,799, the Oppo Enco Buds2 is a value-for-money purchase with good bass-rich sound and an array of features to boot. You also get a pretty solid-looking, minimalist design and good fit. Coupled with the IPX4 rating, these are great workout earbuds for fitness enthusiasts. However, the problem arises when you look at competing feature-rich products in the market – especially the Realme Buds Air 3 Neo. If you get these on sale at around ₹1,200-₹1,400, we'd say buy them without any ounce of hesitation.

—Dhriti Datta

SPECIFICATIONS

DRIVER SIZE: 10 mm | DRIVER TYPE: Titanium dynamic driver | FREQUENCY RESPONSE: 20 Hz - 20 kHz | BLUETOOTH CODECS: SBC, AAC | BLUETOOTH VERSION: 5.2 | WIRELESS RANGE: 10 m / 33 ft | WIRELESS PLAYTIME (BUDS): 7 hours | WIRELESS PLAYTIME (BUDS + CHARGING CASE): 28 hours | CHARGING TIME (BUDS): 90 minutes, 10 minutes for 1-hour playback

CONTACT

OPPO | PHONE: 18001032777 | EMAIL: NA | WEBSITE: <https://www.oppo.com/in/>



Reliance jioBook launched
Reliance jioBook launched in India through Government e-Marketplace
<https://dgit.in/oct22-37>



No more Stadia?

Reports suggest that it was believed that there was no longer a market for single-player games. <https://dgit.in/oct22-38>

Cosmic Byte Equinox Kronos

Wireless surround sound at a budget

If you have ever been in the market for budget gaming peripherals, then we're sure the name Cosmic Byte has popped up several times. They've got a pretty decent lineup of budget gaming peripherals, however, their latest lineup of gaming headsets looks to up the ante a bit, with premium build and design, and a lot more features; all while still being relatively pocket friendly. We're talking about the new Cosmic Byte Equinox Kronos wireless gaming headset. Let's dive into the review.

INSIDE THE BOX

The first thing you'll notice as soon as you unbox the Kronos is that it comes with a black and yellow hard carrying case which feels sturdy and well-built. We weren't expecting it, but it's great that it was there. The headphones, and additional accessories are all packed inside the case. Speaking of accessories, we've got a USB C charging cable, a Type-C wireless dongle, a USB A to C converter, a 3.5mm audio cable, a mic cushion, and the user manual. With these accessories you're certainly covered in the compatibility department, the Kronos should work just fine across all consoles, PCs and mobiles.

BUILD AND DESIGN

Cosmic Byte has opted for a more premium build and design with the Kronos and it shows. The pleather memory foam ear cups feel soft and sit comfortably on your ears. The headset has an aluminium frame inside a pleather headband, with memory foam for the part that sits on your head. We did find however that the ear cups are a bit on the smaller side, which might be a problem if you've got large ears. Coming to the on-ear controls, they're all behind the left ear cup. We've got a volume dial that controls volume only on the headset, a mic mute button, and



the power button which also doubles as the surround sound toggle. You've also got the 3.5mm port on the left earcup, while the typeC charging port is on the right ear cup. The Kronos comes with a pull out microphone, which rolls up into the left side of the headphones. The outside of each ear cup has a metal grill, inside which you have a yellow LED of the Cosmic Byte logo, which is in theme with the overall colour scheme. Just the one colour though.

PERFORMANCE

These come with 50mm drivers and supports Microsoft Sonic and Dolby Surround as well. We don't know if the surround works with PlayStation however since we didn't get to test that. It comes with its own software as well, including separate modes for gaming and music and customisable EQ. During our testing, we found the sound quality to be pretty good. There's good bass that doesn't overpower too much, and there's clarity in the mids and highs as well. The testing was all done on the default Cosmic Byte Optimised EQ preset. We found that while the

sound stage itself is not too expansive (it isn't too wide), the imaging is great. So positional awareness is no issue. The microphone however didn't perform too well. The Kronos comes with a pull-out unidirectional ENC (environmental noise cancellation) mic. Voice sounds distant and muffled. This might have to do with the microphone itself being too short, and it certainly left us wanting.

BATTERY LIFE

The Cosmic Byte Equinox Kronos has an advertised battery life of 24 hours.

If you keep the volume at under 70 percent and turn the LEDs off.

We found that we needed to charge the headphones once every 2-3 days which would be fine if it wasn't unusable for the 2-2.5 hours it took to charge. This was one of the things about the Kronos that really boggled our minds was the fact

that they can't be used while charging. Unless you plug in the aux as well.

VERDICT

Cosmic Byte has certainly upped the ante with the Equinox Kronos. It looks and feels premium, is comfortable to use, and even comes with decent sound quality with only downside being the mic. At ₹6,499 it's a solid wireless gaming headset option, which also comes with Dolby Surround support.

—Manish Rajesh

SPECIFICATIONS

WEIGHT: 333 grams | SPEAKER TYPE: 50mm Dynamic Speaker | SPEAKER IMPEDANCE: 32Ω | FREQUENCY RANGE: 20Hz - 20,000Hz | MICROPHONE TYPE: Pullout Unidirectional ENC Microphone | TRANSMISSION FREQUENCY: 5.8GHz | BATTERY TYPE: Li Battery | BATTERY CAPACITY: 1500mAH | CHARGING TIME: 2.5Hrs | BATTERY LIFE: 24H at 70% volume and LED off

CONTACT

COSMIC BYTE | PHONE: 1800 31300 7700 | EMAIL: Web form | WEBSITE: <https://supportthecosmicbyte.com/support/home>

**Something for everyone**

Facebook is looking at helping creators connect with fans through new features.
<https://dgit.in/oct22-39>

**Humans in space**

NASA has finally released its final blueprint for sustained human presence in space.
<https://dgit.in/oct22-40>

OnePlus Nord Buds CE

Decent at best

The OnePlus Nord Buds CE, as the name suggests, are an addition to that same line of products, joining the OnePlus Nord Buds in OnePlus' quest to stand tall against competitors like Realme, Xiaomi, and Oppo. So, to gauge whether OnePlus' latest offering can stand up to the claims and competition it faces, we put the OnePlus Nord Buds CE to the test at the Digit Test Centre. Here's what we found out.

BUILD AND FIT

OnePlus Nord Buds CE come in an oval-shaped charging case which is made with glossy plastic and sports a subtle OnePlus branding on the front. Fresh out of the box, the case looks absolutely beautiful. However, even if you use it carefully, it tends to pick up scratches with time, dampening the looks. The hinge connecting the rest of the case to the lid, due to the lack of a strong opening and closing mechanism, felt lose and quite flimsy. When it comes to the buds, they also carry over the same colour scheme as the case. They have a long stem, which we are generally not big fans of. The buds slid in and out of the case with ease. They have what we call here the AirPods-esque design, meaning that the fit was polarising. As for the controls, they are embedded at the top of the stem, with the touch-sensitive region having a matte finish compared to the rest of the buds. The sensitivity of the touch sensors is great, and the slightly different finish on the stem makes it easier to recognise the touch-sensitive areas. As a package, these look exactly what you pay for them. Not overtly cheap, and not in the top brass either.

FEATURES

While you may see many pairs of earbuds that are extremely popular in this price range, the OnePlus Nord Buds CE are inclined towards keeping



things simple. For EQ and other customisations, these rely on the HeyMelody app when connected to non-OnePlus devices and OnePlus' offerings below OnePlus 6. For devices newer than the OnePlus 6, all the functions of the HeyMelody app can be found in the device settings itself. The documentation may not say so, but other devices on ColorOS 11.0+ can find the same settings as the newer OnePlus devices baked into the settings. The earbuds come with a low latency Game Mode, which as advertised by OnePlus, brings down the latency to 94ms. The Bluetooth 5.2 connectivity with OnePlus Fast Pair, ensures that there is a seamless and lag-free connection maintained between your device and the earbuds.

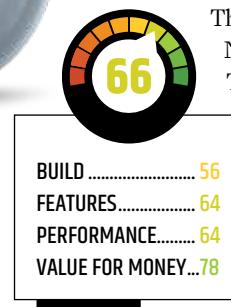
PERFORMANCE

When it comes to performance, there is nothing to write home about the OnePlus Nord Buds CE. The sound signature of the earbuds is bass-heavy. The mids are also underemphasised. To add to the misery is the fact that the design of the earbuds, due to the poor frequency response of the drivers,

brings down the overall listening experience by quite a bit. Comparatively, the Nord Buds, which retail for about ₹500 more, perform relatively much better. However, when strictly looking ₹100 on either side of the ₹2,299 price point of the OnePlus Nord Buds CE, then these are an enticing deal. Also lacking in these earbuds is Active Noise Cancelling. It would be nice to have addition, but considering the price, we did not set our expectations high. When it comes to microphones, during calls in indoor environments, the mics perform well. As soon as you have some background noise, these do not do a good job separating the audio, so your voice ends up being muffled.

BATTERY LIFE

The battery life on the One Plus Nord Buds CE was sub-par. They capped out at just 18



with some spare charge left in the case. The buds themselves lasted for about 4 hours and 30 minutes in our battery test, where we placed them at 50 per cent volume levels. OnePlus also advertises fast charging on these earbuds, which as per their claims, provides 81 minutes of playback for a 10-minute charge.

VERDICT

All things considered, the OnePlus Nord Buds CE is a decent buy if you are already a fan of the brand or are looking for a pair of earbuds that you can rely on for calls in the office or at home. Otherwise, there are a bunch of options available in the market that bring many more features to the table and would also have a decked-out spec sheet.

—Satvik Pandey

SPECIFICATIONS

CASE DIMENSIONS: Width - 35.92 mm Height - 18.47 mm Depth - 17.02 mm | WATER RESISTANCE: IPX4 | MICROPHONE: Yes | DRIVERS: 13.4 mm Titanium Drivers | BATTERY LIFE- Playback: 4.5 hours, Phone call: 3 hours | BATTERY CAPACITY - Per earbud: 27 mAh, Charging case: 300 mAh | SUPPORTED AUDIO FORMATS - AAC, SBC

CONTACT

PHONE: +1800 102 8411 | EMAIL: Web Form | WEBSITE: <https://www.oneplus.in/>

**Hybird motor for ISRO**

ISRO has successfully tested a hybrid motor that would power its future rockets.
<https://dgit.in/oct22-41>

**Licensed monetisation**

YouTube reportedly planning to let creators monetise long-form videos with licensed music.
<https://dgit.in/oct22-42>

Neumann NDH 30

Exquisite open sound and stellar design

Neumann has had a long-standing reputation for delivering some of the best studio microphones and professional monitors in the business, and their NDH 30 attempts to honour that. Unlike its closed-back predecessor, the Neumann NDH 30 is an open-back, circumaural pair of studio headphones primarily targeting broadcast and music producers. These reference studio cans can be used for editing, mixing, and mastering purposes. Priced at ₹52,900, these cans are sure to put a dent in your wallet, but are they worth their asking price? Let's find out.

BUILD AND FEATURES

The Neumann NDH 30 bears a lot of resemblance to the NDH 20. One major difference is the open-back ear cups. These are wired studio monitor headphones with a brushed silver design with matte black accents. The headphones look and feel premium, primarily due to the high-quality materials used in their construction – namely aluminium and stainless steel mixed with a bit of plastic. The insides of the ear cups are coloured orange, which gives the cans a bit more flair in the design department. The headphones are pretty heavy at 350 grams but Neumann has done a commendable job with the weight distribution, so they don't feel uncomfortable despite their heft. The ear cups' pads are made of a velour-like material which the company calls "cloth-covered foam". They are supple, plushy and extremely comfortable, and also, swappable! The headband's cushioning is plushy as well. The cups are well ventilated due to the open-back design of the headphones but this does mean that sound leaks out considerably and there's not much passive isolation too. These are best for use in an indoor studio environment. The cans are fairly portable as well; the arms can be folded inwards and the cups rotate 90 degrees.



Neumann has also provided a cloth carrying bag but we expected a hard case at this price point. The headband is adjustable via a spring steel band and a perforated black metal grille protects the diaphragms inside. The clamping force is adequate. The cable attaches to the right side of the headphones; not the usual left side, so the cable could be in your way. Since these are wired, studio headphones, they don't have much in the way of features. They are studio reference monitors meant to be used inside a professional setup and features like water resistance, don't usually make their way onto professional gear.

PERFORMANCE

The Neumann NDH 30 mean serious business, and for ₹52,900, we expected nothing less from this reputed company. The sound profile is neutral with almost no colouration whatsoever, which is what you'd want from a professional reference-level pair of headphones. They pack 38 mm drivers that sit at a slight angle to replicate the monitors' directionality in a studio. They have an impedance of 120 ohms, so most devices, including some smart-

phones, should be able to power these alright without the need for a super powerful amp. The bass response is deep and bouncy, the mids are exceptionally balanced and detailed and the highs are dynamic and sparkly. The average consumer would maybe find the highs a tad harsh since these aren't coloured like consumer-grade headphones. Distortion is near non-existent even at high volume levels and the two drivers are balanced quite well too.

The open-back design allows for an open and spacious sound that cannot really be achieved by closed-back headphones such as the NDH 20. While passive isolation does suffer, the stage is vast which makes the listening experience very immersive. Due to the uncoloured sonic representation, you may feel the need to turn up the volume levels at times.

The NDH 30 matches up pretty well with the Sennheiser HD 660 S with an open, spacious and neutral sound.

VERDICT

The Neumann NDH 30 is an ideal open-back alternative to the popular NDH 20.

Of course, it is far costlier but what you get is an analytical, neutral sound profile that is perfect for mixing, mastering, and editing. They are exquisitely built, feel quite robust, and look premium. However, there are cheaper open-back headphones out there such as the Sennheiser HD 660 S and the Beyerdynamic DT 900 Pro X. But if price is no bar for you, the Neumann NDH 30 definitely won't disappoint, and are an all-around great investment.

—Dhriti Datta

SPECIFICATIONS

FREQUENCY RANGE: 12 - 34,000 Hz | ACOUSTIC PRINCIPLE: Dynamic open | EAR COUPLING: Circumaural/Over-ear | TRANSDUCER DIAMETER: 38 mm | NOMINAL IMPEDANCE: 120 Ohms | SENSITIVITY AT 1 kHz/1 VRMS: 104 dB SPL | CONNECTIVITY: 3.5 mm (1/8") TRS jack plug (straight), adapter for 6.3 mm (1/4") | CABLE LENGTH: 3.0 m | WEIGHT EXCLUDING CABLE: 352 g

CONTACT

NEUMANN | PHONE: +91 (124) 418 78 00 | EMAIL: NA | WEBSITE: <https://en-de.neumann.com/>

**New PS5!**

Sony may soon bring a new PS5 model, featuring a detachable disc drive.
<https://dgit.in/oct22-43>

**No more FB login**

Nintendo has announced that it will be ending support for logins with Twitter and Facebook. <https://dgit.in/oct22-44>

Sony WH-1000XM5

A cut above the rest

Reviewed by many, Sony's WH-1000X series has rarely disappointed with its class-leading Active Noise Cancellation and reliable sound. The winning formula by Sony continues with the latest and greatest noise cancelling headphones from the company – the Sony WH-1000XM5. The question remains, does the Sony WH-1000XM5 completely justify its increased cost or does it fall short? Let's find out.

BUILD AND DESIGN

Sony hasn't applied the "if it ain't broke, don't fix it" strategy this time around with the Sony WH-1000XM5. But, the flagship headphones from Sony get a complete design overhaul this year. The headphone's profile is slimmer, smoother, and curvier than its predecessor. The headphone has fewer visible joints and hinges and more discreet microphones. The whole look is more "stealthy", for the lack of a better word. Much like the Bose NC 700, the Sony WH-1000XM5 simply lie flat but don't fold away into a more portable unit, which can be a polarising design for some. That aside, the headphones are primarily built out of plastic but it feels exquisite and premium to the touch. Also, Sony's dedication to the environment impresses us – the WH-1000XM5 is made predominantly of recycled ABS. The headband now has sliders instead of clicking extenders. This feels sturdier than earlier designs and the extending process is now more seamless. Onboard controls remain largely the same. Quick Attention makes a comeback, so you can rest your palm on the right ear cup to instantly jump into Ambient Mode. The headphones house a USB-C charging port on the right cup and a 3.5 mm audio jack on the left cup for passive listening.

FEATURES

If you're willing to part with ₹34,990

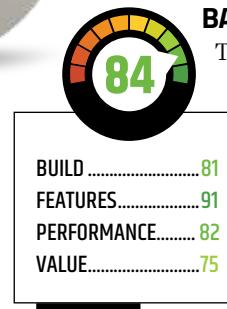


of your hard-earned money, you would expect a cutting-edge pair of headphones with almost every modern-day feature at your disposal. And the Sony WH-1000XM5 delivers just that for you. These headphones are chock full of premium features including ANC, an accompanying app, fast charging, and more. To help with delivering the best noise cancellation possible, the Sony WH-1000XM5 leverages the integrated V1 processor and upped the number of microphones from four to a whopping eight. Another one of Sony's best features is the excellent Headphones Connect app. You can tweak Adaptive Sound Control settings within the app. Sony's DSEE Extreme engine makes a comeback as well which allegedly upscales compressed music to near hi-res quality. The Sony WH-1000XM5 support your device's native assistant but they also come with Alexa built-in, which is great.

PERFORMANCE

Sony chose to go with a smaller 30 mm driver this time around compared to the 40 mm one that sat inside the

Sony WH-1000XM4. While flac files sound stellar with these headphones, DSEE Extreme can even eke out extra detail when you're streaming music over Bluetooth on Spotify or YouTube Music. In tracks such as Uptown Funk by Bruno Mars, the bass kick is rich and punchy but it can slightly impact the clarity of the mids. Mids, by themselves, are delivered with unerring precision and the headphones have impeccable timing as well. There's a slight peak in the highs that allows more clarity to come through but this doesn't sound tinny, thankfully. The headphones reproduce sound with lavish detail, something that's only hindered a tiny bit by the slightly boosted bass and low mids.

**BATTERY LIFE**

The battery life of the Sony WH-1000XM5 remains largely unchanged from its predecessor. It lasted a little over 30 hours with NC turned on and AAC codec active. If you keep LDAC on, you may see the numbers drop. If your cans run out of juice, the Sony WH-1000XM5 comes with fast charging capabilities where just 3 minutes of charge can get you a whopping 3 hours of playback.

VERDICT

Sony has done it yet again! Expectations are always soaring when it comes to Sony's flagship WH-1000X series of headphones and the Sony WH-1000XM5 more than just meets it. The Sony WH-1000XM5 are, without a doubt, best-in-class noise cancelling headphones.

—Dhriti Datta

SPECIFICATIONS

BATTERY LIFE (MUSIC): Max. 30 hrs (NC ON), Max. 40 hrs (NC OFF) | **BLUETOOTH VERSION:** 5.2 | **RANGE:** 33 ft | **SUPPORTED AUDIO FORMAT(S):** SBC, AAC, LDAC | **DRIVER UNIT:** 118 inches / 30mm | **FREQUENCY RESPONSE:** 20 Hz-20,000 Hz (441 kHz Sampling) 20 Hz-40,000 Hz (LDAC 96 kHz Sampling 990 kbps) | **HEADPHONE TYPE:** Closed, dynamic

CONTACT

SONY | PHONE: 18001037799 | EMAIL: [Web form](#) | WEBSITE: <https://www.sony.co.in/>



40 Series is here!
NVIDIA RTX 40 Series graphics cards featuring Neural Rendering announced at GTC 2022. <https://dgit.in/oct22-45>



Better document forwards
WhatsApp Documents could become more accessible with an upcoming update. <https://dgit.in/oct22-46>

Apple iPhone 14 Pro Max

Incremental upgrades still make for the best iPhone yet

September has always been the month of launch of the new iPhones every year. This year is the first time we've got a meaningful separation between the non-Pro and Pro iPhones – with the new Dynamic Island, higher resolution camera, and the upgraded chipset. However, is it worth the extra dough? And does the new iPhone 14 Pro Max do enough to sway Android fans from the premium phones from Samsung, Google, and others? Let's find that out and more in the detailed review.

BUILD AND DESIGN

The iPhone 14 Pro Max looks remarkably similar to the last generation iPhone 13 Pro Max, but there are two key differences – the notch is replaced by the pill-shaped cutout Apple has dubbed the 'Dynamic Island' and all the rear camera lenses are significantly larger than last year's model. It is 7.9 mm thick and weighs 240 g. Like its predecessor, the Pro variants have a frosted matte glass back and polished stainless steel sides. The buttons as well as the alert slider are in the same spots as before. The new pill-shaped cutout dubbed 'Dynamic Island' houses Apple's TrueDepth camera system for FaceID, and the selfie camera. One speaker out of the stereo setup and the Lightning port are found at the bottom. The phone also comes with an IP68 rating against dust and water.

DISPLAY

The iPhone 14 Pro Max has a gorgeous display, there's no denying that. It is a 6.7-inch Super Retina XDR OLED display with Dolby Vision support and a maximum rated brightness of 2,000 nits. In our tests indoors, the display went up to 901 nits of maximum brightness, and outdoors, it touched around 1550 nits. It is topped with Apple's Ceramic Shield that is as tough and



resistant to drops as ever. As for refresh rate, the iPhone 14 Pro Max comes with an LTPO panel with adaptive refresh rate from 1 Hz to 120 Hz. However, the phone's display only ever goes into 1 Hz when on the not so great, Always-On display.

PERFORMANCE

The iPhone 14 Pro Max is powered by the latest Apple A16 Bionic chipset built on a more efficient 4 nm process. It comes with a 5-core GPU and a 16-core Neural Engine. There's only 6 GB RAM on offer, it is more than enough for multitasking – however – open 5 or more apps and the first one seems to shut down completely. We ran our usual benchmarks on the phone and the results put the phone up there with Androids housing the Snapdragon 8+ Gen 1, and in some cases, even higher. We played games as well and the phone handled them with relative ease and slight heating. The haptics engine of the iPhone 14 Pro Max is the best in class. The stereo speakers are extremely loud and sound exquisite.

CAMERAS

The images taken from the primary lens of the iPhone 14 Pro Max were sharp, detailed, and colourful. The colours look rich and full of contrast but aren't oversaturated. Shots taken at night look stellar as well. Those of human subjects with night mode look slightly noisy and artificial but when we used the Adaptive Flash, they looked much more true to life. The ultrawide camera takes fantastic shots as well with similar colour science as the main lens. The selfies taken from the phone look natural and detailed. Video quality is the absolute best in the business on the iPhone 14 Pro Max. The footage captured is smooth, true to life, has great dynamic range, and looks professional.

BATTERY

The phone drained 4 per cent battery in 15 minutes of playing COD: Mobile (from 35 per cent to 31 per cent) and it lasted almost 16 hours in our 4K video loop test. Now, these are fantastic numbers, but the 13 Pro Max outshone this phone in regards to battery life. Figures aside, the phone still will run for at least a day and a half for normal users and will last power users for about a day.



BUILD.....	86
FEATURES.....	76
PERFORMANCE.....	88
VALUE.....	84

VERDICT

With novel innovations such as Dynamic Island, an improved camera system, and class-leading performance, the Apple iPhone 14 Pro Max is an easy recommendation for those looking for the fastest and one of the best phones in the market. All that comes for a steep price though.

—Dhriti Datta

SPECIFICATIONS

COLOURS: Space Black, Silver, Gold, Deep Purple | WEIGHT: 240 g | DISPLAY: LTPO 6.7-inch Super Retina XDR OLED | DISPLAY RESOLUTION: 2796x1290 | REFRESH RATE: 120 Hz (Adaptive) | IP RATING: IP68 | PROCESSOR: Apple A16 Bionic | RAM: 6 GB | ROM: Up to 1 TB | SOFTWARE: iOS 16 | CAMERA (REAR): 48 + 12 + 12 MP | CAMERA (SELFIE): 12 MP | BATTERY CAPACITY: 4,324 mAh | FAST CHARGING: 50% in 30 minutes (advertised), 15W MagSafe wireless charging

CONTACT

APPLE | PHONE: NA | EMAIL: Web form | WEBSITE: <https://www.apple.com/in/>

**iPhone 15 Ultra in '23!**

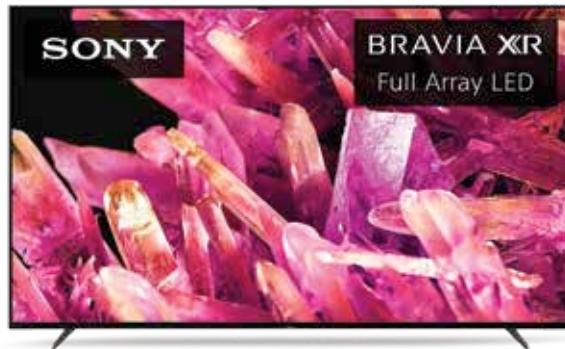
Apple may replace the "Pro Max" with "Ultra" that will arrive with 8K video and better battery life. <https://dgit.in/oct22-47>

**New YouTube on mobile**

YouTube is rolling out a new video mobile page that tweaks many elements and a unified design. <https://dgit.in/oct22-48>

Sony Bravia XR 65 Inch 4K

Great sound, even better picture quality



₹2,49,900



DESIGN.....	92
PERFORMANCE.....	92
VALUE FOR MONEY....	91
FEATURES.....	91

Sony has been betting big on OLED panel technology for years now with many of its premium and higher-end TVs making use of this technology. To take the good work forward Sony has launched the XR OLED A80K in India. We've had the 65-inch model of the XR OLED A80K with us for a while now, giving us enough insight to explain what this TV brings to the table.

PICTURE QUALITY AND PERFORMANCE

With Sony's XR A80K, the company combines a WRGB panel with self-emitting pixels to help the TV achieve pronounced blacks and an almost infinite contrast ratio. This is a similar combination to the one we saw on A80K's predecessor -- the A80J launched last year. However, since it's an upgrade, this new panel on the A80K also brings with it support for features such as Contrast Pro, XR Triluminos Pro, and Cognitive Processor XR. All these features work in tandem with the self-emitting pixels of the OLED to deliver deep blacks and rich details. Additionally, because of the use of OLED technology, which ensures there are no dimming zones on the panel, the Sony XR A80K also doesn't suffer from blooming issues. Sony's new OLED 4K TV also offers support for Dolby Vision, HDR10+ and HLG. When consuming content from streaming portals, the content

automatically switches to the best available

preset, which in the case of Netflix is a special Adaptive Calibrated Mode that automatically adjusts the picture brightness based on ambient room lighting. For such pieces of content, the panel gets plenty bright without losing out on details and highlights. This also makes the TV not only great for consuming 4K HDR content but arguably one of the best TVs we've tested for HDR content. The Cognitive Processor XR drastically improves the visual experience of consuming low-resolution or even SDR content on the TV. When gaming, the TV does not disappoint. The moment you hook up a console or a gaming laptop, and fire something like Dirt 5 or Assassin's Creed Valhalla, the Sony XR A80K takes your breath away with its visuals. HDR-ready games look extremely beautiful with rich colours, deep blacks, and impressive contrast. Unlike last year's A80J, Sony's latest OLED also gets two ports that come with VRR support and 4K at 120Hz. There's also ARC, eARC and ALLM on these ports making them good for gaming. The TV also gets Auto HDR Tone Mapping for PS5.

AUDIO PERFORMANCE

For a premium end TV, the Sony A80K series comes with a bunch of audio features that promise to enhance the experience of watching movies or

playing games on the TV. One of these is Sony's Acoustic Surface Audio+ feature. As the company explains, for this the company has positioned five actuators – three behind the screen and two at the sides – to create a fuller sound experience. These actuators have been paired with two subwoofers for a more complete sound experience.

DESIGN, REMOTE AND CONNECTIVITY

Sony's XR A80K is a very visually striking unit, that looks worth every penny that Sony's asking for it. One of the most striking features of the TV is just how thin it is. The thin panel is held together by a plastic enclosure that also houses the TV's motherboard and other hardware, including the connectivity ports. Talking about these, the TV comes with four HDMI ports, an AV port, a 3.5mm headphones port and two USB ports. As for the remote, the Sony XR A80K comes with a new remote which does not bring with it a Numpad. The remote looks premium and quite modern to match the aesthetics of your room.

VERDICT

If you're in the market for a premium segment OLED, then the XR A80K should really be a TV you consider. This TV will provide you with a visual treat. It offers decent brightness for an OLED and also offers good colour accuracy out-of-the-box when set to the Cinema preset. It also offers really good upscaling of 1080p or even 720p content to 4K, along with good viewing angles and fast refresh rates, VRR as well as low input lag if you're a gamer.

—Sushant Talwar

SPECIFICATIONS

PANEL SIZE: 65-inch | PANEL RESOLUTION: 3840 x 2160p (4K) | PANEL REFRESH RATE: 120hz | HDR 10 SUPPORT: Yes | HDR 10+ SUPPORT: No | DOLBY VISION SUPPORT: Yes | HDMI 2.1 PORTS: 2 | HDMI 2.0 PORTS: 2 | USB PORTS: 2 | BLUETOOTH: Yes, 5.0 | WI-FI: Yes, dual-band | ETHERNET: Yes | SPEAKERS: Actuator x 3, Subwoofer x 2 | BUILT-IN STORAGE: 16GB

CONTACT

PHONE: 18001037799 | EMAIL: N/A | WEBSITE: <https://www.sony.co.in/>

**Language interpretation**

Microsoft has announced that Teams meeting attendees can now have an interpreter. <https://digit.in/oct22-49>

Qualcomm

Ultra high SD 8 Gen 2

Reports suggest that Qualcomm SD 8 Gen 2 may have ultra-high frequency variant. <https://digit.in/oct22-50>

POCO M5

Chic and formidable

The Poco M5 is an affordable phone priced under ₹15,000 in India and is packed to the brim with essential features. Though the Poco M5 is a 4G phone, it's got all the bases covered with features such as the 50MP main camera, a large 5,000mAh battery to boot and an unmatched design in this price range. In this Poco M5 review, we'll try and find out whether buying the Poco M5 4G makes sense or over a 5G device.

BUILD AND DESIGN

Right out of the box, the Poco M5 feels nothing like an affordable smartphone as it has a leather-like textured finish on the back panel which gives it a premium look and feel. The Poco M5 isn't the slimmest or lightest smartphone in this price range yet it's one of the best-looking phones you can get under ₹15,000. Even though it's largely made from plastic, the Poco M5 is durable for daily use and the screen upfront has a layer of Gorilla Glass 3 protection.

DISPLAY

The Poco M5 features a good display that's perfect for watching videos and much more. It supports a 90Hz refresh rate which makes every interaction smooth and helps while playing games. It has a waterdrop notch and a rather wide chin but that doesn't come in the way of your viewing experience. In our tests, the display of the Poco M5 produced 360 nits of maximum brightness. Being an LCD panel, the minimum brightness we recorded was 2 nits. It produces accurate colours and is vibrant with crisp visuals which are good enough for most users but an AMOLED display here would have uplifted the viewing experience.

PERFORMANCE

The MediaTek Helio G99 inside the Poco M5 is no slouch in day-to-day



performance and easily keeps up with day to day tasks. In benchmark tests, the Helio G99 showcased similar, if not better CPU and GPU performance over the Helio G96, Snapdragon 695, 680 and the Dimensity 810 chipsets. The thermal management has also improved on the Helio G99 from the G96. Game Turbo 5.0 keeps games like COD Mobile and Genshin Impact running albeit with some frame drops here and there but nothing that's going to spoil your overall experience. We also ran the CPU throttling test where the Poco M5 delivered 94% of its maximum potential in the 15-minute run and 92% in the 30-minute run. This proves that it's more than capable of handling daily tasks without compromising much.

BATTERY LIFE

The Poco M5 has a large and sufficient battery capacity of 5,000mAh to boot which offers a long battery life. The battery life of the Poco M5 is really great and a major plus point for buyers because it can last for over two days on

casual use. If you're a power user, you'll be able to get around a day's worth of battery life on a single charge. Moreover, the M5's battery didn't even drop by a per cent for 10 hours the phone was kept idle.

CAMERAS

In adequate lighting conditions, the Poco M5 produces sharp and visually appealing pictures from its main 50MP camera. The images have a nice and natural depth of field and the camera app locks down the focus quickly. The textures in subjects such as flowers or walls are also well processed as it doesn't smooth out the pictures. The portrait mode works well, lending a shallow depth of field effect to pictures but loses out a bit on textures and natural colours. At night, the pictures from the main camera have a lot of grain and artefacts and switching to

the night mode solves those issues as it reduces the noise and bumps up the highlights and exposure levels. The macro camera takes decent close-up shots and nothing extraordinary because the sensor is of a low resolution which is only able to capture so many details.



DESIGN.....	64
PERFORMANCE.....	77
VALE FOR MONEY	72
FEATURES.....	70

VERDICT

The Poco M5 is one of the most good-looking phones you can buy without emptying your pockets. It's got a good display, a powerful processor in the Helio G99 which handles everyday use easily and a great primary camera.

—Siddharth Chauhan

SPECIFICATIONS

DISPLAY: 6.5-inch LCD, FHD+, 90Hz refresh rate, Gorilla Glass 3 | **THICKNESS:** 8.9mm | **WEIGHT:** 201g | **PLATFORM:** MediaTek Helio G99 | **RAM:** 4GB/6GB LPDDR4X | **BUILT-IN STORAGE:** 64GB/128GB UFS 2.2 | **EXPANDABLE STORAGE:** Yes, upto 1TB | **5G SUPPORT:** No | **USB-C:** Yes | **3.5MM JACK:** Yes | **OS:** MIUI 13 based on Android 12 | **REAR CAMERA:** 50MP (f/1.8) + 2MP macro + 2MP depth sensor | **REAR CAMERA VIDEO:** 1080p (30FPS) | **FRONT CAMERA:** 8MP (f/2.0) | **SPEAKERS:** Single speaker | **BATTERY AND CHARGING:** 5,000mAh, 18W wired | **COLOURS:** Poco Yellow, Power Black, Icy Blue

CONTACT

PHONE: 1800-572-7626 | EMAIL: service.in@poco.net | WEBSITE: <https://www.poco.in/>

**A mini Pixel**

Google is said to be working on a new Pixel mini smartphone that might come with a small screen. <https://dgit.in/oct22-51>

**Quantum computer in IIT**

IIT Madras opens India's quantum research doors, joins IBM's quantum computing network. <https://dgit.in/oct22-52>

Lenovo Yoga 9i

The 2-in-1 all-rounder

Lenovo has been in the 2-in-1 game for a long time, and have been refining their design over the years. The Yoga lineup is easily one of the best when it comes to 2-in-1 laptops, and the Yoga 9i that we have with us aims to top whatever they've done so far. So, how good is the new Lenovo Yoga 9i?

BUILD AND DESIGN

The Lenovo Yoga 9i is constructed out of matte aluminium, including the lid, and the body. This naturally makes the Yoga 9i feel quite robust and sturdy. The colour looks like a mix between champaign and rose gold, Lenovo are calling it Oatmeal. The sides are rounded, which makes it a lot more comfortable to hold when compared to flatter sides, especially when using it in tablet mode. The sides are glossy, as opposed to matte finish featured on the rest of the laptop. This same glossy finish is also present on the speaker bar, which doubles as the hinge for the laptop. The touchpad size is just large enough that it doesn't get in the way of typing and the keyboard. We're not fans of chiclet keyboards because they're not satisfying to type on. This applies to the Yoga 9i as well. At least it's backlit, which is nice. The Yoga 9i comes with a 1080p webcam, which should more than suffice for all your video calling needs. It supports Windows Hello. There's an included fingerprint reader at the bottom right of the laptop keyboard as well. It also comes with a stylus, the Lenovo E-color Pen, with built-in USB-C for charging.

I/O PORTS

For the ports, we were pleasantly surprised to find plenty of options. You've got one USB-A 3.2 port, one USB-C 3.2 which also supports power delivery 3.0, data transfer and DisplayPort 1.4. You've also got two Thunderbolt 4



ports which also support data transfer, Power Delivery 3.0, and DisplayPort 1.4.

DISPLAY AND AUDIO

The Yoga 9i features a 14-inch 10-point multitouch display, and the model we got features a 4K OLED display. That's a resolution of 3840x2400. It comes with an advertised brightness of 400 nits, and it scored pretty close to that in our tests, at 373 nits. It also comes with an advertised 100% DCI-P3 coverage; the laptop scored 99.1% in our tests. The display is VESA DisplayHDR 500 certified, so blacks look great. The laptop features a speaker bar hinge; a design that ensures the speaker is pointed towards the user regardless of the mode the laptop is in. The audio quality is actually pretty decent, however, you'll probably end up using earphones to consume most media either way. It also features a 3.5mm headphone / microphone combo jack, so that should cover most of your audio needs.

PERFORMANCE

The Lenovo Yoga 9i comes packed with some pretty serious specs, including a 12th gen Intel Core i7-1280P CPU with 14 cores and 20 threads, and a max boost clock of 4.8 GHz, 16 GB of LPDDR5 RAM clocked at 5200 Mhz,

and a speedy 1 TB M.2 2280 SSD from Samsung. The benchmark scores speak for themselves. With each run, it exceeded our expectations. However, the Yoga 9i does not have a dedicated GPU; instead you've got the integrated Intel Iris Xe. While not as good as a dedicated GPU, it's still pretty solid, good enough to comfortably play older titles. However, we would still advise against using the Yoga 9i for heavy photo or video editing work.

The M.2 2280 SSD also works as advertised, with our tests getting us close to the advertised read and write speeds of 7000 and 5100 MB/s.



DESIGN.....	83
PERFORMANCE.....	87
VALUE FOR MONEY..	66
FEATURES.....	81

BATTERY

The Yoga 9i comes with an integrated 75Wh battery. This comes with an advertised battery life of 10 to 14 hours, depending on the kind of content being consumed. At maximum brightness it was able to last around 8-9 hours on the PCMark 10 battery benchmark.

VERDICT

The Lenovo Yoga 9i is an all-rounder 2-in-1 which offers good performance across the board. They've made some design changes over the previous Yoga laptops which actually makes it more comfortable to hold now. However, you don't get a dedicated GPU. It should have no trouble with just about everything else you throw at it, except games.

—Manish Rajesh

SPECIFICATIONS

PROCESSOR: Intel Core i7-1280P, 14 Cores / 20 Threads, 4.8GHz | **GRAPHICS:** Integrated Intel Iris Xe Graphics | **MEMORY:** 16GB Soldered LPDDR5-5200 | **STORAGE:** 1TB SSD m.2 2280 PCIe 4.0x4 NVMe | **WEBCAM:** ToF, FHD 1080p & IR with Privacy Shutter | **BATTERY:** Integrated 75Wh | **POWER ADAPTER:** 65W USB-C Slim (3-pin) | **DISPLAY:** 14-inch 4K (3840x2400) OLED | **BRIGHTNESS:** 400 nits | **TOUCHSCREEN:** 10-point Multi-touch | **DIMENSIONS:** 318 x 230 x 15.25 mm | **WEIGHT:** 1.4 kg | **OPERATING SYSTEM:** Windows 11 Home 64 | **I/O:** 1x USB 3.2 Gen 2, 1x USB-C 3.2 Gen 2 (support data transfer, Power Delivery 3.0, and DisplayPort 1.4), 1x Headphone / microphone combo jack (3.5mm), 2x Thunderbolt 4

CONTACT

LENOVO | PHONE: 1800-419-7555 | WEBSITE: <https://www.lenovo.com/in/en/contact>



OLeap Pilot

Funding: \$301,056 pledged of \$12,740 goal
Link: <https://dgit.in/OLeap>

In-Ear bone Conduction earphones aren't exactly based on a new concept. But they aren't exactly famous either. The OLeap Pilot is a set of Bone Conduction earphones that boast of extreme comfort and amazing quality. A rare combination that we don't often get to see in bone conduction earphones. The main advertising points for these earphones are the fact that they are super light weight and are able to deliver great audio quality without damaging your eardrums like other more traditional earphones which require you to put their buds inside.

The OLeap Pilots also come with a 270-degree rotating microphone which has supposedly received an amazingly positive response from the reviewers who have taken a look at the pair and tested them properly. Though the quality hasn't received complaints as of now, the mic sure does make you look like a customer service rep because of the protruding mic arm. The headset also supports dual connectivity, i.e. it can connect to both a phone and a PC at once.

The pledge options for the OLeap Pilot start from \$79 which will land you a pair of the headphones along with a few accessories as well as a 30-day risk-free trial. Meanwhile a pledge of \$129 will land you the headset as well as all the accessories for it. The list of benefits however keeps increasing as you keep giving them more money.

Outisan e-Wagon

Funding: USD101,249 pledged of USD12,740
Link: <https://dgit.in/Outisan>

If you're an avid hiker or are someone who goes camping or just someone who loves the great outdoors and takes trips to remote places often, then this one is for you. The Outisan e-Wagon is a load carrying electronically assisted wagon so that you don't need to carry all the extra load on your back or drag it along the way making yourself more and more tired along the process. The e-Wagon by Outisan boasts of a Front Wheel Drive

with a peak power of 900W so that you don't need to do the heavy lifting.

Be it going uphill or down, the wagon will also make sure to use its power in proper proportions and directions so that you don't have problems carrying the load in either direction be it up or down. In case you were wondering how the wagon might



The era of robot pets has been longed for ever since people could wrap their heads around the idea of robots working for them. There is something about having a small machine moving its hydraulic legs around and walking around you while showing emotions that plucks just the right heartstrings in a person. That is simply what the people developing Loona have gone after. In pursuit of creating one of the smartest pet-bots that the world has seen, the makers of Loona have made sure that Loona is a domestic robot replacement unlike Spot from Boston Dynamics who has been demonstrated to have multiple different uses including military.

With multiple different actions displayed in the trailer video for Loona, the common pattern found to be around all of them is that Loona has been programmed to act completely like a household pet. She rushes to the door to greet you when she hears it open, loves to get pets from you, comes running when you call her, and of course, knows how to do tricks based on gestures that you show her.

Even though Loona only has one variant available, there are multiple levels of rewards that you can receive while backing this project. The pledge starts from \$299 which will get you your very own Loona and a set of essential accessories. The higher your pledge, the more Loonas you will get.



fare against muddy areas. It also has all terrain wheels attached to it with a diameter of 7-inches and a thickness of 4-inches while also showing off an IP66 Waterproof rating so you can rest assured that the wagon is going to keep your things safe when inside. The battery on the wagon runs for about 7 miles or about 11.25 kilometers and is also detachable for easy charging.

The pledge options for the Outisan e-Wagon start off at USD 449 where you will receive a wagon of your own as a reward along with the bare essentials required for it to run such as the battery and the chargin cable. As you pay more and reach the \$658 mark, you will also receive 4 accessories for the wagon namely an extra battery, a waterproof sun cover, a cargo net, and a detachable bottle holder.

Optimising performance on NVIDIA CUDA

Get more from your GPUs with a few simple tips

Mithun Mohandas | mithun@digit.in

If you're interested in machine learning or AI, then there's nothing more popular than

NVIDIA's CUDA architecture.

Globally, NVIDIA GPUs power most of the AI processing hardware and as of Q3-2021, they enjoyed a market share of 80.6 per cent of the global revenue, as per OMDIA. That's 3.2 billion dollars! Xilinx, Google, Intel and AMD follow NVIDIA, although the market has changed quite a bit since AMD acquired Xilinx. Nevertheless, you will have to learn how to program for CUDA cores at some time or the other. We're hoping to help you optimise your code for performance with these few simple guidelines.

One of the principal methodologies for determining which strategy you need to follow relies on careful examination of the code and its performance. Different portions of the code base will react differently with the hardware. The goal is to identify portions of the applications that need optimisation and then run performance profiling tools to see if there are any performance limiters for said portion. For example, a portion of the code may be limited by the available memory primarily. Optimising this portion for parallelisation or instruction throughput is not going to yield much of a performance improvement. You will have to switch to a better hardware with more memory to overcome a memory limit.

Going along these lines, there are several basic strategies for optimising performance. These are:

- Maximise utilisation through parallelisation
 - Maximise memory throughput
 - Maximise instruction throughput
 - Minimise memory thrashing
- Let's go through these strategies to

see how they can be implemented to give you that little extra boost of performance.

MAXIMISE UTILISATION

One of the key tenets of GPGPU is parallelisation. Modern graphics cards sport hundreds or even thousands of similar computing cores which can all run in parallel to maximise processing throughput. By leveraging the parallelisation capabilities and maximising utilisation across all available parallel paths, you can improve performance by leaps and bounds. The goal is to keep as many CUDA cores busy for most of the time.

CUDA allows for the following operations to be treated as independent tasks that can run concurrently:

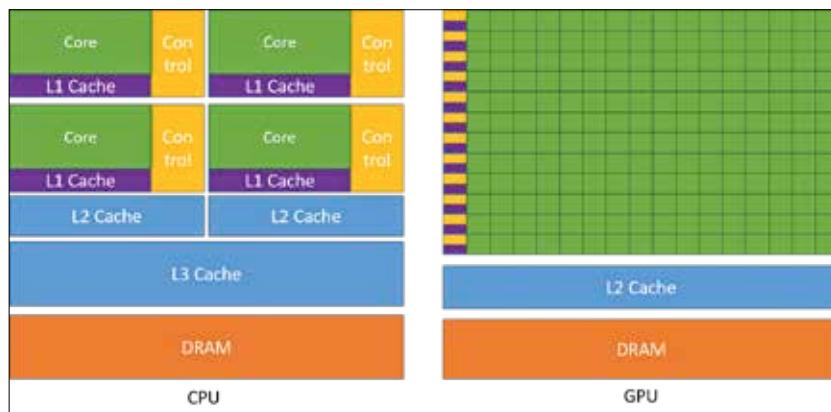
- Computation on the host
- Computation of the devices
- Memory transfer from host to device
- Memory transfer from device to host
- Memory transfer within memory of device

Memory transfer across devices

In this context, the host is the computer in which all the devices a.k.a. the graphics cards are installed. And modern day GPUs including the ones from NVIDIA allow for multiple graphics cards to be installed in the same host. Parallelised workloads can be shared across all the compatible graphics cards installed in a host machine.

Application Level

An application being written for CUDA should maximise parallel execution of the code between all the elements mentioned above. This includes the host, the devices and the bus interface that connects all the devices to the host. This can be done via Asynchronous Concurrent Execution. The host is usually best equipped to handle serialised workloads whereas the devices i.e. the



CPU vs GPU: Potential for parallelisation



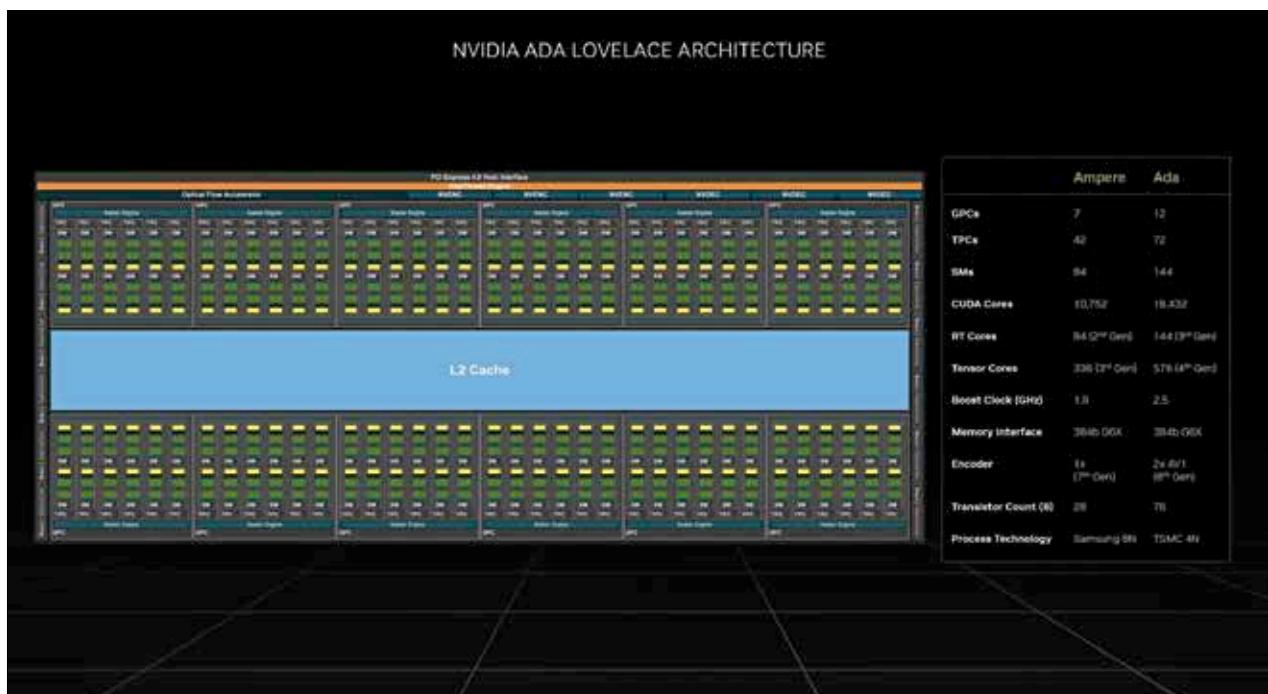
A hand of brotherhood

Google widgets for iOS 16 lock screen are available now for iPhones.
<https://dgit.in/oct22-54>



New SIM for 5G in India?

The short answer is – yes your 4G SIM is enough to get 5G service, once the latter is available. <https://dgit.in/oct22-56>



CUDA cores in the new Ada Lovelace architecture

graphics cards are more optimised for parallelised workloads. So you need to decide which type of workloads are assigned to the host and which need to remain with the devices.

There will be points in the code where the parallelisation has to pause because there is a dependency on some other workload or different threads need to synchronise with each other to share data. If these threads are from the same block then using `_syncthreads()` allows the threads to share data through shared memory within the same kernel invocation. If the threads are from different blocks then you have to share data using global memory which is a little slower and takes more kernel invocations.

Device Level

Each NVIDIA graphics card has several multiprocessors and each multiprocessor has several CUDA cores within them. Whenever you are writing an application, it should be written to maximise parallel execution between the multiprocessors of the device. The benefit here is that the multiprocessors are much closer to each other and share lower level

cache memories. This allows for the workload to be executed much quicker without the need to move across devices.

Multiprocessor Level

Similarly, at the multiprocessor level, there are various functional units which all should be utilised to the maximum before moving to a higher level. A warp is the smallest unit of execution on an NVIDIA device and each warp is processed across 32 threads. Utilisation is closely linked to the number of resident warps and the warp scheduler selects an instruction to execute whenever it is ready. If the instruction to be executed is waiting for another instruction within the same warp then the two can be executed together within the same warp. We've already touched upon Asynchronous

MAXIMISE MEMORY THROUHPUT

The way you maximise memory throughput is by minimising all the data transfers which are low bandwidth. The host and the device have a much slower interconnect than most

of the other interconnects that we are concerned with. Hence, minimising the data transfers between the host and the device is what we need to do. This also entails minimising data transfers between global memory and the device memory by utilising more of the on-chip memory, the caches and the shared memory.

Shared memory is something that the application explicitly allocates and accesses. Typically, you would want to load data from global memory to device memory. This is followed by loading data from device memory to shared memory. Then you would want to synchronise with all the threads of the block so that the threads can read the shared memory locations that have been loaded by different threads. Then the processing of said data can begin. After that the shared memory needs to be updated with the results post processing. This requires another synchronisation. Finally, the results will be written back on the device memory.

In the case of certain applications, a traditional hardware-managed cache is more appropriate rather than having to manually optimise the



Tencent fires its editorial staff

Tencent has laid off all of the editorial staff at Fanbyte, an online gaming publication owned by it. <https://digit.in/oct22-57>



Less power hungry. Irony.

Apple is reportedly researching how it can save power by automatically pausing media playback. <https://digit.in/oct22-58>

memory throughput. The throughput can vary vastly depending on the access patterns for each type of memory so organising the memory accesses as per the device specifica-

width. Bandwidth that can be used for other transfers. And if the system comes with a FSB or a Front-Side Bus, then you can use Page-Locked Host Memory to achieve higher

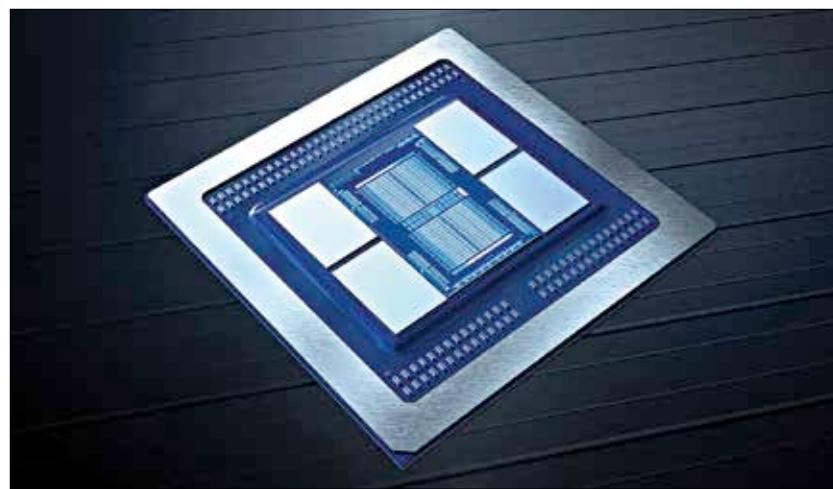
worthless and mapped Page-Locked memory should be used.

MAXIMISE INSTRUCTION THROUGHPUT

Maximising instruction throughput requires a bit more know how regarding how different compilers treat the code that you write. Modern day compilers will encourage the use of certain primitives that are more efficient to begin with. With CUDA, there are a few simple strategies that you can follow.

Minimising the use of arithmetic instructions with low throughput. You might have to trade precision for speed by using single-precision functions rather than double-precision functions. Obviously, if you need double-precision then by all means you should use it. Otherwise, stick to single-precision. And then you should use intrinsic functions instead of regular functions. Intrinsic functions can only be used in device mode and they're often less accurate than standard functions. You can also use the compiler flag `-use_fast_math` at compile time to force the compiler to use intrinsic functions wherever you have used regular functions. Such blank approaches will drop accuracy by a significant amount. An easy way to identify intrinsic functions is by the double underscore that's prefixed before the function name. For example, `_tanf(x)` is the intrinsic version of `tanf(x)`. Also, flushing denormalised numbers to zero helps.

Reduce the number of divergent warps caused by control flow instructions. Control flow instructions such as if, switch, for, while, do, etc. can impact instruction throughput by a huge amount by causing threads of the same warp to follow different execution paths i.e. diverge. Whenever this happens, you lose out on parallelisation because there is a dependency being created which is waiting for another iteration or run to be completed. This makes the workload serialised for the warp. As mentioned previously,



HBM memory with up to 665 GB/s bandwidth

tions is optimal. This is very much applicable in places where global memory access is required frequently.

Host and device bandwidth

As mentioned previously, data transfer between the host and the device should be minimised because the bandwidth is low and that subsequently holds up execution as threads have to wait longer for data. One way to minimise this would be by moving more of the code to the device itself. This would mean that some kernels which do not have potential for parallelism are also executed on the device. While this might seem like a non-optimal way of going about doing things, the trade-off is actually not that bad. One of the ways this is resolved on the device is when Intermediate data structures are created and destroyed without ever being written to the host memory.

Data transfers have overheads and that can also chalk up to a lot of bandwidth getting used up if you make a lot of small transfers between the host and the device. Batching a lot of these small transfers together and then sending them in one go reduces the overheads and saves on band-

width with transfers. Regular pageable host memory is allocated using `malloc()` but with CUDA, you can have Page-Locked Host Memory. You can allocate Page-Locked Host Memory using `cudaHostAlloc()` and `cudaFreeHost()` to allocate and then later free up the memory. Also, `cudaHostRegister()` page-locks a range of memory that has already been allocated using `malloc()`. The benefits of using Page-Locked Host Memory is that you can use kernel execution to concurrently work on copies stored between the Page-Locked Host Memory and the device memory. On certain devices, the Page-Locked Host Memory can be mapped onto the address space of the device which makes it much easier for the device to process it since there is no need to copy the data from or to the device memory. Lastly, on systems with an FSB, the bandwidth is higher if the host memory is allocated as Page-Locked and the bandwidth can be even higher if it is allocated as write-combining. Certain integrated systems might have the host and the device memory being the same. In such cases, copying data between the host and the device memory is



Real time community chats

Meta has announced a new feature called Community Chats that will soon see the light of day. <https://dgit.in/oct22-59>



New plant for Intel

Intel has kicked off work on the new \$20 billion semiconductor plant in the Ohio state in US. <https://dgit.in/oct22-60>

modern compilers are quite efficient at dealing with control flow conditions. Some compilers might unroll loop functions and use branch prediction to handle switch-case and if conditional statements. This ensures that there are no divergent warps being created.

You can also reduce the number of instructions by synchronising wherever possible. Another way to reduce instructions would be by using restricted pointers.

MINIMISE MEMORY THRASHING

In a distributed system, data can be saved onto any device and the changes that are done to mapped memory needs to be reflected everywhere. As more and more applications or processes or functions start modifying different portions of the memory, there is a lot of data synchronisation happening. This means, each new process or function has to wait for a data synchronisation to happen before it can access the memory. This leads to a little wait time. And as the number of processes or functions increase, this wait time scales quite a bit and you experience thrashing. There is also memory that's being released to be used by a completely independent external process which might be associated with the operating system. Over time, the allocation calls tend to get slower and slower and utilisation drops.

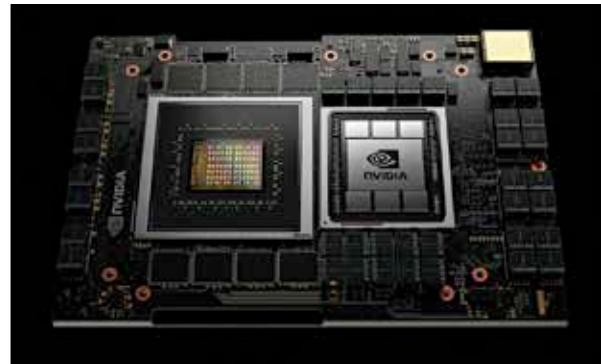
To deal with memory thrashing, you can allocate as much memory as

you believe will be required by the applications. However, the urge to allocate all the memory should be avoided. There are other applications which also need to use the memory and allocating the entire memory brings those processes to a halt.

And if the entire device memory gets allocated for a single application then the host memory needs to be used and that will slow things down considerably.

If possible, allocate memory as early as possible within the code and then avoid using cudaMalloc() or cudaFree() frequently. This is to be followed especially in functions where the performance is critical. If the workload is heavily parallelised, then having to run cudaMalloc() can lead to significant delays.

And if some application has gone ahead and allocated all the device memory, you should always factor in a fallback by using the host memory. Yes, the host memory is much slower than a local device memory but using it will at least allow the program to progress further than having to wait until memory is released.



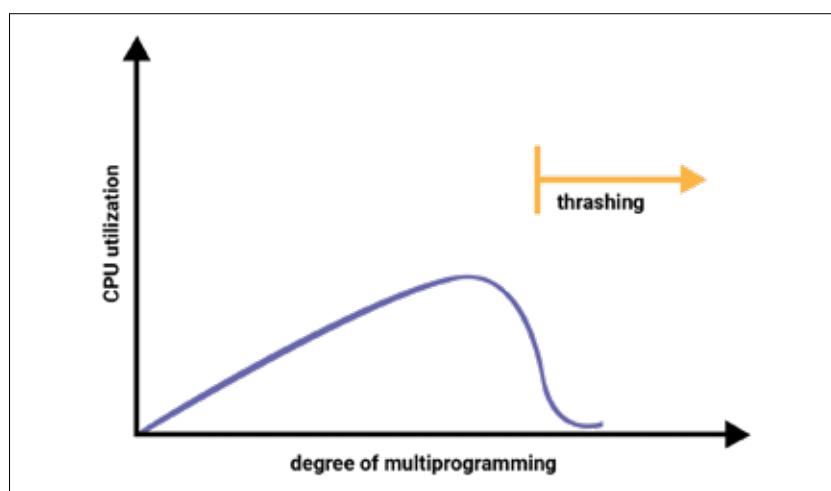
NVIDIA Grace Hopper with HBM memory

Certain platforms support cudaMallocManaged. This is a way to oversubscribe memory. This way, the memory allocation is not forced to be resident until and unless it is explicitly needed. Think of it like how airlines overbook passengers. While the passengers might not like it, the airline is always flying a packed flight.

LAST OPTION - UPGRADE HARDWARE

Even the most optimally written code cannot overcome the physical restrictions of not having enough Streaming Multiprocessors to play with. Also, if your code will benefit from much higher device memory, then the answer to getting a boost in performance is to upgrade your hardware. While the code written for CUDA will run on any NVIDIA graphics card that supports all the primitives used, there is the distinction between the consumer, enterprise workstation and data centre product lines.

The workstation and consumer cards top off at 48 and 24 GB of GDDR6X memory whereas the data centre card comes with 80 GB of HMB2e and HBM3 memory. HBM has a bus-width of 5120 bits which is magnitudes ahead of the 384-bit consumer cards. You can have much more parallel transfer using such a wide bus-width. So all things considered, optimised code will yield high returns but sooner or later, you might have to consider an upgrade as well. ☺>



Memory thrashing leads to reduced performance

**VLC creators react to India ban**

They say that they should be provided with a reason for the block and an opportunity to defend themselves. <https://digit.in/oct22-61>

**OnePlus Buds Pro 2 specs leaked**

A recent leak revealed that the company is following in the footsteps of its parent company. <https://digit.in/oct22-62>

ATX 3.0 Power Supplies Ahoy!

Everything needs more power ... or do they?

Agent001 | agent001@digit.in



Every CPU or GPU that has launched over the last 2-3 years or are about to launch soon has a ridiculous hankering for power. Manufacturers have been redefining terminology around power to make it seem like everything is fine and dandy but it's really not. Yes, these new chips are being designed on much more power-efficient process nodes but with competition getting intense between all the big players, there hasn't been much of an opportunity for said players to lower power consumption values. Being a nice low-power consuming component is as good as accepting defeat even before the starter guns go off. All of this begs the question... Do you need to get a new power supply?

If you're building a new rig from scratch using a brand new AMD Ryzen 7000 series processor or an upcoming Intel Core i9-13900K processor and clubbing that with an NVIDIA RTX 40-series GPU, then you are going to make things easier for yourself if you get a new ATX 3.0 power supply. The ATX 3.0 standard is very new and there are barely any power supplies on the market supporting the latest standard but it's something that was designed to deal with high-power PC components. The principal change in the ATX 3.0

spec is the inclusion of a new power connector - 12VHPWR. While the name is a mouthful, it stands for 12 Volt High Power connector and uses a 16-pin plastic connector like what we've seen all these years. The 16 pins are broken down into two halves, one having 12 pins for driving up to 600

not that far behind at 230-240 Watts. Both put together easily consume a little over 700 Watts of power. Leave some headroom for the other devices connected to your PC and soon enough, an 850 Watt power supply seems like the bare minimum that you'd need to build a top-of-the-



Seasonic Vertex 1000W SMPS

Watts and the other half consisting of 4 pins for the power supply to talk to whatever it is connected to. This allows the power supply to be better prepared to handle burst power requirements rather than being surprised by the GPU.

"Whatever" in this context is a graphics card and the upcoming RTX 4090 is the most power hungry card to have launched in recent years. Yet, it's only rated for 450 Watts. The 12th Gen Intel flagship processor consumes close to 260 Watts at peak use and the AMD Ryzen 9 7950X is

line gaming rig. But does that mean existing 850 Watt and higher power supplies are useless?

Not quite. Graphics card manufacturers will be providing adapters like they have always been in the past. Using that should still make it possible for PC builders to power the upcoming RTX 4090. Yes, the lack of the 4 pins that communicate with the power supply might make it a little taxing on the GPU which is why PCI-SIG, the body that comes up with standards such as PCIe has issued a warning regarding the use

**New PS5 for India soon!**

Sony is reportedly planning to soon bring its new PlayStation 5 gaming consoles to the Indian market. <https://digit.in/oct22-63>

**Cheaper electricity in Delhi**

The Delhi government recently came forward to announce an electricity subsidy scheme. <https://digit.in/3fNqxlV>

of adapters to combine multiple ATX power connectors together. Three ATX PCIe 8-pin power connectors can be combined to provide 450 Watts of power easily but the contact pins in the adapter and the wire gauge should be capable of handling such high power. Each power pin might need to handle up to 9.2 Amperes of power continuously and that will lead to quite a bit of heat generation. So if the connector isn't capable of dissipating that heat, then we will see the plastic around the connectors getting affected. NVIDIA

says that while the concern is valid, the new GPUs don't consume more power than the RTX 30 series flagship. So if the older flagships could run on your PSU, then the new RTX 40-series should run just fine.

At the end of the day, if your existing PSU has three PCIe power connectors which are emerging from three different cables, then you should be fine to use the adapter. Don't use any of the Y-cables which have two 8-pin connectors on the same cable. That doesn't help distribute the power load and there's a

good chance that you might trip the power supply's overcurrent protection circuit. If none of the above conditions are being met, then you should get a new power supply or hold off until more units enter the market. Seasonic Vertex, ASUS Loki and SilverStone Hela power supplies are the top candidates for the job if you're building a new PC. Seasonic isn't easily available in India but the other two brands have good presence, so you're likely to find them sitting on the same shelf at RTX 40-series cards at computer shops. **d**

BUYING ADVICE**UPGRADE CPU?**

Q Hi Agent 001,

I have a good gaming PC with the following specs:

- CPU - AMD Ryzen 7 3800X
- RAM - 16 GB DDR4
- Motherboard - ASUS PRIME X470-PRO
- GPU - NVIDIA RTX 3080
- PSU - Cooler Master 850W
- Monitor - 240 Hz Gaming Monitor

I wanted to know if there's a reasonable upgrade that will give me more gaming performance. I think the RTX 3080 is good for now, should I upgrade to Ryzen 7000 or Intel 12th Gen? Maybe a PCIe 4.0 SSD will give more performance?

-Sambit R

A Hey Sambit,

You have a pretty great gaming rig with the configuration that you have shared. If you're considering an upgrade then I really want to know what kind of games you are playing and at what resolution because warranting an upgrade with this configuration would mean that you're really pushing the rig to its limits. That being said, yes, upgrading your processor will result in an



AMD Ryzen 7
5800X3D

uptick in performance. If you upgrade to the AMD Ryzen 7000 processors or even the Intel Core i9-12900K, then you will have to spend quite a lot of money considering that both platforms require you to upgrade your motherboard as well. And there are barely any cheap options for the Ryzen 7000 family since it has just recently launched.

What I'd like to point out is another option that not only does away with the need to change your motherboard but is also better than the two options mentioned here. This would be the AMD Ryzen 8 5800X3D. It's a recently released processor within the AMD Ryzen 5000 family with one major

difference - the presence of much higher cache memory. The Ryzen 7 5800X3D is the only processor with such a large amount of cache memory tacked onto the processor die itself. Video games absolutely love to have high amounts of cache memory and the Ryzen 7 5800X3D has been shown to outperform the Ryzen 7000 and Intel 12th Gen processors in a lot of video games. And as of BIOS version 5861 for your mother-

board, it is properly supported so it's an easy drop-in replacement for your existing 3800X. In terms of performance, you can get anywhere between 30-60 per cent improvement in a lot of video games. That will certainly help you get smoother gameplay since you already have a high refresh rate monitor with adaptive sync. And I'm not talking about games such as Valorant which are anyway well-optimised and will give 200 FPS. Even graphics intense titles such as Warzone, RDR2, Cyberpunk 2077 and Metro Exodus will see decent FPS gains. For ₹40K, it is the most sensible upgrade that you can make to your rig. Just remember to upgrade your BIOS to version 5861 or higher before you switch the processors. **d**

PAISE BACHAO OFFER

SAVE MONEY BY SUBSCRIBING
TO THESE OFFERS



MAGAZINE ONLY (Without FastTracks):

1 YEAR: COVER PRICE RS. 1,500/- YOU PAY RS. 999/- SAVE RS. 501/-

1 YEAR OF DIGIT SUBSCRIPTION GIVES YOU

200+ PRODUCT REVIEWS	200+ FEATURE STORIES	200+ TIPS AND TRICKS AND PROBLEM RESOLUTIONS	1000 GB OF SOFTWARE GAMES, TUTORIALS, ENTERTAINMENT AND MORE	12+ FAST TRACK BOOKS	12+ POSTERS	2 DMYSTIFY SCIENCE BOOKS	COLLECTOR'S EDITIONS (JUNE AND DECEMBER) PRICED BETWEEN ₹250 AND 300 EACH
----------------------	----------------------	--	--	----------------------	-------------	--------------------------	---

FOR MORE SUCH EXCITING SUBSCRIPTION SCHEMES, PLEASE REFER TO THE ATTACHED SUBSCRIPTION FORM OR VISIT store.digit.in/subscribe

WE ACCEPT MAJOR CREDIT CARDS | DEBIT CARDS | NET BANKING | CASH CARDS | MOBILE PAYMENTS (SBI-PAYMATE) | WALLETS (PAYTM AND MOBIKWIK)

ON COVER PRICE*

OFFER EXPIRES ON
31st OCTOBER 2022

ACT NOW

SUBSCRIBE ONLINE AT
<https://store.digit.in/subscribe>
OR

WHATSAPP DIGIT SUB TO
<https://digit.in/WhatsApp>

FOR QUICK CUSTOMER SERVICE
EMAIL US AT help@digit.in
OR
CALL (022) 678 99 678

WHY
SUBSCRIBE TO
digit?

DOORSTEP DELIVERY AT NO EXTRA COST
GUARD AGAINST FUTURE PRICE INCREASES
EXCLUSIVE OFFERS FOR SUBSCRIBERS



digit

SUBSCRIPTION FORM

digit.in

DURATION	COVER PRICE	YOU PAY	ASSURED GIFT / YOU SAVE (on cover price)
Money Saver offers (With Fast Tracks)*			
<input type="checkbox"/> 6 Months	₹ 1,300*	₹ 999	Cash discount of ₹ 301 (23%)
<input type="checkbox"/> 1 Year	₹ 2,600*	₹ 1,999	Cash discount of ₹ 601 (23%)
<input type="checkbox"/> 3 Years	₹ 7,800*	₹ 5,999	Cash discount of ₹ 1,801 (23%)
Magazine - Only Package (Without Fast Tracks)**			
<input type="checkbox"/> 1 Year	₹ 1,500**	₹ 999	Cash discount of ₹ 501 (33%)

*Includes regular issues of ₹ 200 each and higher priced special issues per year

**Includes 12 regular issues of ₹ 125 each per year

Start / Renew my subscription from [IN IN](#) [Y Y](#)

Name _____
 (First Name) _____ (Middle Name) _____ (Last Name) _____

Occupation _____ Company _____ Designation _____

Delivery Address _____

City _____ Pin Code _____ State _____

Telephone _____ Mobile _____ E-mail _____
 (STD Code) (Phone Number) _____ (Please mention an active email-id to receive your copy dispatch details)

Subscription Number _____
 (Only for existing subscribers)

Payment Details

Enclosed Cheque/DD No. _____ (Kindly add ₹ 50 for cheques not payable at par in Mumbai)

dated _____ favoring **9.9 Group Pvt. Ltd.** from Bank _____

Mail this form alongwith your cheque/DD to:

9.9 Group Pvt. Ltd.
 (Formerly known as Nine Dot Nine Mediaworx Pvt Ltd)
 B-103, 1st Floor, Arjun Centre,
 Station Road, Govandi East,
 Mumbai - 400088, Maharashtra
 Board line: 022-67899666
 Fax: 022- 67899667

Subscribe online at <https://store.digit.in/subscribe>

OR

Whatsapp 'DIGIT SUB' to <https://dgit.in/WhatsApp>

For quick customer service,
 email us at help@digit.in
 OR
 call (022) 678 99 678

SUB OCT 22

TERMS & CONDITIONS: This is a limited period offer | Rates & offer valid in India only | Allow 5-6 weeks for processing of your subscription | Free assured subscription gift will reach you within 8 - 10 weeks of commencement of your subscription | Orders once placed will not be terminated or transferred | Specific colors and features of the guaranteed free assured gifts are subject to change depending on availability of the stock with the manufacturer | Destinations not covered by courier will be serviced by post under a certificate of posting | Replacements will be made upon receipt of the damaged goods within 30 days of sale | Above schemes are valid till 31st October 2022 | Price of assured gift may vary, but specifications will be unchanged.

**Intel launches new GPUs**

Ending the long wait of the fans, Intel has officially unveiled the Arc A750 and A770 GPUs.
<https://dgit.in/oct22-07>

**Google disables translation service**

Google has disabled the service in mainland China owing to "low usage".
<https://dgit.in/oct22-08>



What is VESA ClearMR certification and logo program?

ClearMR is a new metric that VESA has introduced to make it easier for consumers to compare motion clarity across different displays

Deepak Singh | feedback@digit.in

Motion on a display can look natural with a bit of a display blur, but most of us could use high motion clarity while gaming or watching sports. Especially while gaming, better motion clarity can be vital for a competitive edge. Traditionally Specs like G2G or MPRT have been used to represent motion clarity, but these don't tell a consumer much and are also very easy for manufacturers to game. To address this challenge, VESA has

introduced the ClearMR standard to give users a straightforward metric for comparing two products.

ClearMR is an open standard for grading motion blur in digital displays on TVs, monitors, laptops, and more. But what exactly does VESA ClearMR Logo mean? Can VESA ClearMR certification be trusted? Let's answer all such questions and more!

WHAT DOES THE VESA CLEARMR LOGO MEAN?

VESA's new metric for motion clarity is Clear Motion Ratio or CMR. It is basically a ratio of clear pixels to blurry pixels expressed as a percentage. VESA will test displays used

in Monitors, TVs, Laptops, etc. in approved Authorized Test Centers (ATCs) and certify them for Clear MR tiers ranging from 3000 to 9000. As shown in the image below, all tiers represent a CMR Range and not one fixed value. For instance, ClearMR 3000 certified displays will have 25 to



30 times more clear pixels than blurry pixels. When expressed in percentages, the ratio will be 2500 to 3000 as is denoted in the CMR chart below detailing different tiers.

VESA CLEARMR VS MPRT VS G2G: WHY DO WE NEED CLEAR MR?

One of the prime reasons for motion blur is the slow response time of the



Samsung expanding its refurbished program

It could start selling newer refurbished phones soon. <https://dgit.in/oct22-09>



Twitter launches new features

Twitter launches new features to make video consumption on the platform better. <https://dgit.in/oct22-10>

FEATURE

VESA CERTIFIED ClearMR	ClearMR™ TIER	CMR RANGE
	ClearMR 3000	2500 ≤ CMR < 3500
	ClearMR 4000	3500 ≤ CMR < 4500
	ClearMR 5000	4500 ≤ CMR < 5500
	ClearMR 6000	5500 ≤ CMR < 6500
	ClearMR 7000	6500 ≤ CMR < 7500
	ClearMR 8000	7500 ≤ CMR < 8500
	ClearMR 9000	8500 ≤ CMR

pixels. If the pixels don't completely change state in a refresh cycle (16.7-millisecond for 60Hz displays), the next frame will show some degree of lag that will manifest as motion blur in fast-moving sequences. As a prevailing industry standard, Blur for LCD and OLED displays are evaluated using Response Time which is often measured as the time taken for a pixel to go from peak black to peak white state. Manufacturers usually quote G2G response time and MPRT or motion picture response time as a spec to indicate motion clarity. G2G is the time it takes to switch from one shade of grey to another. This isn't a very good indicator since actual content often involves transitioning from different shades of grey or other colours, which may take longer. MPRT represents for how long a pixel will linger on the screen before it disappears. MPRT is dependent on frame rate and can be improved using motion enhancement techniques like Black Frame Insertion (BFI), overclocking, frame rate interpolation and more. Most LCD monitors today quote a response time of less than 1ms for the transition from one particular shade of grey to another, rendering the spec largely meaningless. Many of these LCD monitors can have a response time of more than a factor of 10 in practical scenarios. Besides, Manufacturers adopt techniques to enhance response time that introduces ugly artefacts in images. An OLED monitor with the same quoted response time will feel faster in practice.

So, yes, a metric that makes it easier for users to determine motion clarity is very much appreciated. This is easier said than done but that's what VESA plans on delivering with the new ClearMR certification.

HOW DOES VESA TEST A DISPLAY FOR CLEARMR CERTIFICATION?

VESA or its authorized labs use digital high-speed cameras to shoot pictures of test patterns as they switch from one frame to another. A colourimeter is used to verify the pattern luminance. Blur reduction methods like backlight strobing are disabled to maintain a level playing field. Some manufacturers increase the drive voltage and reduce response time for transitions and that may result in other overshoot artefacts. Vesa limits such image enhancement techniques while testing displays for CMR certification. The test is independent of the display technology being used and the final results are repeatable.

- All products are tested in SDR mode (HDR tests are under development).
- All products are tested at native resolution.
- All products are tested at their maximum frame rate.
- All products are tested at ambient room temperature.

CAN THE VESA CLEARMR CERTIFICATE BE TRUSTED FOR MOTION CLARITY?

It's still too early for us to comment

on how effective the VESA ClearMR certification will prove to be. VESA also has a DisplayHDR certification program which doesn't add much meaning for consumers but has been enthusiastically received by manufacturers. The certification doesn't properly define HDR. Screens with lower-tier certifications like the DisplayHDR400 and DisplayHDR600 for LCD panels do not produce impactful HDR. In the first set of VESA ClearMR certified monitors, we can see that LG's high-end Ultragear OLED monitors have the same ClearMR 7000 certification as IPS LCD monitors, which doesn't seem very convincing. We will have to wait and watch to know if this turns out to be more of a marketing logo or adds actual value for buyers.

TOP VESA CLEARMR CERTIFIED MONITORS TO BUY

LG was the first to come aboard and Samsung Displays will soon follow. As of now, a handful of LG monitors and HP Omen 25i have ClearMR certifications.



- LG 48" UltraGear UHD OLED Monitor - VESA ClearMR 7000
- LG 32" UltraGear QHD Nano IPS LCD Monitor - Vesa ClearMR 7000
- LG 27" UltraGear QHD Nano IPS LCD Monitor - Vesa ClearMR 7000
- LG 31.5" UltraGear QHD Nano IPS LCD Monitor - Vesa ClearMR 6000
- LG 32" UltraGear UHD 4K Nano IPS LCD Monitor - Vesa ClearMR 6000
- HP 32" Omen 25i IPS LCD Monitor - Vesa ClearMR 5000

You can find the official list at this link: <https://dgit.in/VESA>

**Elon to depose before Twitter**

Elon Musk is set to depose before the Twitter lawyers earlier this week in the deal termination case. <https://dgit.in/oct22-23>

**Netflix Games adds 'Oxenfree'**

Netflix is making the Oxenfree game freely available to its users with a subscription. <https://dgit.in/oct22-24>

From novelty to necessity – Here's how TWS earbuds evolved

A look at almost a decade of evolution

Satvik Pandey | satvik@digit.in

In today's day and age, the market for consumer electronics, especially audio products, has matured to a level which no one could have guessed in ages. Within consumer audio gadgets, True Wireless Earphones, or as we generally call them, TWS earphones, have also seen a huge jump in both technological innovation and their demand in the market.

What started out as a fad-like product line in the world of tech, battling against the trusty old, wired earbuds, has now grown into a mainstay of every conversation regarding wireless audio technology. And the journey from the ground up for wireless earbuds is as interesting as it sounds.

THE FIRST NOTES

As it would be the case with any 'revolutionary' tech innovations in today's time, TWS wireless earbuds could have registered their presence for the first time, either in the booth of a popular audio brand at a tech show or on the Kickstarter page of a brand started by a bunch of innovative misfits if we may call them so. However, tracing back the origins of TWS earbuds is a tough task. This is because the biggest challenge is filtering through the numerous contenders that are out there, staking their claim on being the first ever company to have



made True Wireless Earbuds. It was around

2014-15 when the buzz started around the tech circles that major players in the market were burning the midnight oil to be the first in the race.

There were Kickstarter campaigns like the one by Bargi LLC. for their Dash earbuds. These earbuds were being sold for \$199 at the time and were equipped with features that would put even some earbuds that are being sold today to shame. Alongside Bargi, earin also launched a Kickstarter campaign for their own TWS earbuds. Despite not being as 'feature-rich' as the offering by Bargi, the earin buds were also successful in creating a buzz around the market. Several



Earin Earbuds

other brands too also came out with their first iterations of TWS earbuds sometime later, and it looked like the journey had started on a positive note.

However, it wasn't smooth sailing for the brands and Kickstarter campaigns. It wasn't long before the first issues started surfacing. And you guessed it... They were related to irregularities in

Bluetooth connectivity. If your tracks on your wireless earbuds skipped a beat in today's time, you'd rush to the brand's Twitter page and shred them to pieces. But you had to bear with connectivity issues when you had limited options. The other weak point for the early TWS offerings were their weak battery life. The Bargi Dash earbuds with 15,998 backers who pledged \$3,390,551 promised only 2-3 hours of playback time. So, there was a lot to be done.

AIRPODS – SETTING STANDARDS

No matter how staunch of an Apple hater you are, you have to accept one thing – They might always show up late to the party, but when they do, they bring it to life. Well, so was the case when Apple first launched their AirPods in 2016. No matter how great the AirPods may look as a product that took the industry forward, they also had their hiccups when it came to first being sent out in the market. They had been announced by Apple alongside the infamous iPhone 7, which is known to be the one that dropped the headphone jack. So, when the voices echoed in the chambers of the internet, the only thing reached everyone's ears – It was the fact that the AirPods were merely a money-making tool for Apple. However, there was also



Two cameras to scan!

Samsung is working on a camera system for facial recognition with two under-display cameras. <https://dgit.in/oct22-25>



Mandatory Google login

Fitbit will require its users to login using their Google account from next year. <https://dgit.in/oct22-26>

To understand the recent shift in the TWS market in a better way, we sat with Mr Gyanendra Singh, Head - Audio Marketing at Sony India Pvt Ltd, for a brief interaction. Here's what he had to say when we asked him about the monumental shift the audio industry has seen, taking it away from the wired earbuds:

"I think two big reasons. One, I think more got to do from a functionality point of view. The usual clutter, one associated with you know, managing device from the time was there. So therefore, there is a need to get away from that across products, not just true wireless. The aspect of going wireless and with the development of the wireless technology that was possible on across. So that's, that's been one of the reasons, which is a more functional aspect of it. And the other is also, I think the usage. The increasing consumption of content has been the other thing. And there is also the aspect of, of a style



**Mr Gyanendra Singh,
Head - Audio
Marketing at
Sony India Pvt Ltd**

statement, which goes along with the true wireless earbuds. Then there is the form factor, which has caught everyone's fancy.

When it comes to the pandemic impact, it was not that, that TWS wasn't growing before that, but I think that seemed to have accelerated it one-two times. Before that TWS more oriented towards music, and of course, yes, you could take calls, but I think it became a necessity when, when we got into the pandemic. And, this is worldwide, not just one or two markets. So, I think some of these things have really made this shift far more aggressive. In some of the developed countries, as we speak, I think even before the pandemic, the change was already there. And the TWS usage could be as high as 60-65 per cent in some of those markets. In India's case, we've still got, some way to go before we even get to the 50% mark. So I think there is scope but we should note that we are a very diverse country with a large market."

another legion that supported it. Now, after many years when the headphone jack on smartphones is hearing its death bell, and the dust has settled, the AirPods were truly the benchmark that everyone tried to, and so many years later, still tries to achieve. The very simple testament to the success of the AirPods is the fact that the market right now is flooded with similarly named products, and for the layman, AirPods are synonymous with a pair of TWS earbuds.

LOCKED INSIDE

Once the AirPods train had caught some

steam and major audio product manufacturers like Sony, Harman, Sennheiser, and the likes also started making their own TWS earbuds for the masses, then the race towards cutting costs and achieving the best value for money ratio started.

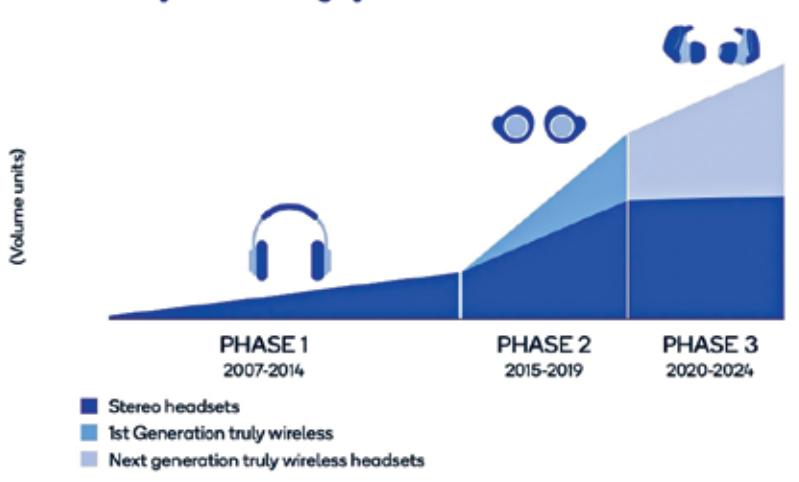
There were brands left, right, and centre trying to push the bar even higher in terms of quality at the lowest possible price. It did not take long for earbuds that usually were known to be sold around the ₹7000 mark to be up in the market for almost half the price while also retaining the quality. There was also a shift noticed in features and focus areas. Qualcomm

in their report titled The evolution of true wireless technology very aptly note –

"The first wave of truly wireless devices were designed for voice calls and music streaming; however, use cases have evolved since then demanding that the latest generation of earbuds deliver richer consumer experiences with features including hearing enhancement, Active Noise Cancellation, ambient leak through of sound for situational awareness, and integrated Voice Assistants. A further development challenge for manufacturers is meeting consumer demand for ultra-small form factor earbuds that can be used for many hours at a time while balancing the need for increased processing power to meet the demands of these more sophisticated use cases. Next generation truly wireless headsets in both premium and entry/mid tiers need to support this growing range of features and applications and continue to deliver customer satisfaction with seamless wireless connections."

The onset of the COVID-19 pandemic has also played a role in the expansion of the adoption of TWS earbuds and a significant reduction in their prices. And the effects of the change in the market dynamics have trickled down to the everyday consumers getting better products at reasonable prices. **d**

Growth of truly wireless category



digit Config

Everything you'll ever need to build your own PC. Whatever your budget.

INTEL

Basic Rig	₹42,776
Basic Gaming	₹80,268
Entry-level Gaming	₹1,05,655
Mid-Range Gaming	₹1,41,115
Semi-pro Video Editing Rig	₹2,69,282
Ridiculous Gaming	₹3,90,288

INTEL

BASIC RIG

Processor	Intel Core i3-12100	12,599
Motherboard	ASUS PRIME H610M-E D4	7,199
RAM	Crucial DDR4 3200 MHz (2 x 4GB)	3,400
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	Intel UHD Graphics 730	0
PSU	Corsair CV450	3,099
Speakers	None	0
Mouse	Logitech MK200 Wired Keyboard and Mouse Combo	980
Keyboard	Logitech MK200 Wired Keyboard and Mouse Combo	0
Sound Card	None	0
Sub-total	(Excluding Monitor)	31,576
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	OEM Cabinet	1,000
TOTAL		₹42,776

ENTRY-LEVEL GAMING

Processor	Intel Core i5-12400F	16,799
Motherboard	ASUS PRIME H610M-E D4	7,199
RAM	G.Skill Sniper X Series DDR4 (2 x 8GB) 3600 MHz	6,299
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Corsair CV450	3,099
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	86,818
Monitor	Samsung Odyssey 24-inch LF24T352FWXXL	13,387
Cabinet	MONTECH X3	5,450
TOTAL		₹1,05,655

SEMI-PRO VIDEO EDITING RIG

Processor	Intel Core i9-12900K + Noctua NH-D15	63,438
Motherboard	MSI MAG Z690 TOMAHAWK WIFI	25,199
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	Seagate Barracuda 2 TB (ST2000DM005)	4,399
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headphones	beyerdynamic DT 770 PRO Studio Headphones	12,999
Mouse	Logitech MX Master 3	6,999
Keyboard	Logitech MX Keys	10,299
SSD	Crucial P2 1 TB SSD	6,899
Sub-total	(Excluding Monitor)	2,06,431
Monitor	Dell U2723QE	54,667
Cabinet	Cooler Master MASTERBOX TD500	8,184
TOTAL		₹2,69,282

BASIC GAMING

Processor	Intel Core i5-12400F	16,799
Motherboard	ASUS PRIME H610M-E D4	7,199
RAM	Corsair Vengeance RGB DDR4 (2x 8GB) 3200 MHz	5,400
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	Gigabyte GeForce GTX 1650 D6 OC	18,199
PSU	Corsair CV450	3,099
Headset	ASUS TUF Gaming H3	3,099
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	64,618
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	MONTECH X3	5,450
TOTAL		₹80,268

MID-RANGE GAMING

Processor	Intel Core i7-12700F + Noctua NH-C14S	35,798
Motherboard	MSI PRO B660M-A DDR4	14,950
RAM	Corsair Vengeance LPX DDR4 (2 x 8GB) 3600MHz	6,190
HDD	Seagate Barracuda 1 TB (ST1000DM010)	3,250
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master MWE Gold 650W V2	7,038
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	Cooler Master CK550 V2	6,962
SSD	WD SN570 500GB NVMe M.2 SSD	3,999
Sub-total	(Excluding Monitor and Cabinet)	1,23,866
Monitor	LG 24GL600F 24-inch 144 Hz	13,299
Cabinet	Cooler Master Masterbox K501L	3,950
TOTAL		₹1,41,115

RIDICULOUS GAMING

CPU	Intel Core i9-12900K	55,299
Motherboard	GIGABYTE Z690 AORUS MASTER	43,899
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	NVIDIA RTX 3080 Ti Founders Edition	1,13,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headset	HyperX Cloud II	9,990
Mouse	Razer Basilisk V3	6,565
Keyboard	SteelSeries Apex Pro	27,999
SSD	AORUS Gen4 7000s SSD 1TB	15,149
CPU Cooler	Fractal Design Celsius S24 Prisma Liquid Cooler	16,649
Monitor	Samsung Odyssey G7 32-inch 2K 240 Hz	43,750
Cabinet	Fractal Design Torrent	15,490
TOTAL		₹3,90,288

CONFIGS

REJOICE PC MASTERRACE! FOR THE FIRST TIME IN A LONG TIME WE HAVE SEEN A DROP IN THE PRICES OF GPUs AND OTHER COMPONENTS. IS THIS THE SIGN OF ALL THE GOOD THINGS TO COME, OR A FALSE HOPE?

AMD

■ Basic Rig	₹33,717
■ Basic Gaming	₹72,239
■ Entry-level Gaming	₹1,04,381
■ Mid-Range Gaming	₹1,42,783
■ Semi-pro Video Editing Rig	₹2,80,752
■ Ridiculous Gaming	₹3,53,490

AMD

BASIC RIG

Processor	AMD Athlon 3000G	6,399
Motherboard	GIGABYTE GA-A320M-S2H	4,340
RAM	Crucial DDR4 3200 MHz (2 x 4GB)	3,400
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	Radeon Vega 3 Graphics	0
PSU	Corsair CV450	3,099
Speakers	None	0
Mouse	Logitech MK200 Wired Keyboard and Mouse Combo	980
Keyboard	Logitech MK200 Wired Keyboard and Mouse Combo	0
Sound Card	None	0
Sub-total	(Excluding Monitor)	₹22,517
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	OEM Cabinet	1,000
TOTAL		₹33,717

ENTRY-LEVEL GAMING

Processor	AMD Ryzen 5 5600X	17,499
Motherboard	ASUS PRIME A520M-K	5,225
RAM	G.SKILL Sniper X Series DDR4 (2 x 8GB) 3600 MHz	6,299
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Corsair CV450	3,099
Headset	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	₹85,544
Monitor	Samsung Odyssey 24-inch LF24T352FHWXXL	13,387
Cabinet	MONTECH X3	5,450
TOTAL		₹1,04,381

SEMI-PRO VIDEO EDITING RIG

Processor	AMD Ryzen 9 7950X + Noctua NH-D15	74,207
Motherboard	X670 Auros Elite AX	25,900
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	Seagate Barracuda 2 TB (ST2000DM005)	4,399
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headphones	beyerdynamic DT 770 PRO Studio Headphones	12,999
Mouse	Logitech MX Master 3	6,999
Keyboard	Logitech MX Keys	10,299
SSD	Crucial P2 1 TB SSD	6,899
Sub-total	(Excluding Monitor)	₹21,791
Monitor	Dell U2723QE	54,667
Cabinet	Cooler Master MASTERBOX TD500	8,184
TOTAL		₹2,80,752

BASIC GAMING

Processor	AMD Ryzen 5 4500	9,999
Motherboard	GIGABYTE A520M S2H	5,970
RAM	Corsair Vengeance RGB DDR4 (2x 8GB) 3200 MHz	5,400
HDD	WD Blue 1 TB (WD10EZEX)	3,125
Graphics Card	Gigabyte GeForce GTX 1650 D6 OC	18,199
PSU	Corsair CV450	3,099
Headset	ASUS TUF Gaming H3	3,099
Mouse	Razer Viper Mini	2,900
Keyboard	HP K500F	1,299
SSD	Kingston NV1 500 GB	3,499
Sub-total	(Excluding Monitor and Cabinet)	₹56,589
Monitor	LG 22MK600M 21-inch 60 Hz	10,200
Cabinet	MONTECH X3	5,450
TOTAL		₹72,239

MID-RANGE GAMING

Processor	AMD Ryzen 7 5800X + Noctua NH-C14S	34,249
Motherboard	ASUS TUF GAMING B550 PLUS	15,400
RAM	Corsair Vengeance LPX DDR4 (2 x 8GB) 3600MHz	6,190
HDD	Seagate Barracuda 1TB (ST1000DM010)	3,250
Graphics Card	NVIDIA RTX 3060 Ti Founders Edition	38,000
PSU	Cooler Master MWE Gold 650W V2	6,900
Headphones	Cooler Master MH630	4,599
Mouse	Razer Viper Mini	2,900
Keyboard	Cooler Master CK550 V2	6,962
SSD	WD SN570 500GB NVME M.2 SSD	4,233
Sub-total	(Excluding Monitor and Cabinet)	₹122,683
Monitor	LG 24GN650-B 24-inch 144 Hz	16,150
Cabinet	Cooler Master Masterbox K501L	3,950
TOTAL		₹1,42,783

RIDICULOUS GAMING

CPU	AMD Ryzen 7 7700X	36,500
Motherboard	X670 Auros Elite AX	25,900
RAM	Kingston FURY Beast (KF552C40BBK2/32) 5200 MHz 16GB x2	23,199
HDD	WD Blue 2 TB WD20EZBX	4,299
Graphics Card	NVIDIA RTX 3080 Ti Founders Edition	113,000
PSU	Cooler Master V1000 Fully Modular	15,000
Headset	HyperX Cloud II	9,990
Mouse	Razer Basilisk V3	6,565
Keyboard	SteelSeries Apex Pro	27,999
SSD	AORUS Gen4 7000s SSD 1TB	15,149
CPU Cooler	Fractal Design Celsius S24 Prisma Liquid Cooler	16,649
Monitor	Samsung Odyssey G7 32-inch 2K 240 Hz	43,750
Cabinet	Fractal Design Torrent	15,490
TOTAL		₹3,53,490

**WhatsApp group calls**

WhatsApp is rolling out Call Links to make it easier to start and join a call in just one tap. <https://dgit.in/oct22-29>

**"Corrupted" Google Photos**

Several Google Photos users have complained that their old photographs had been "corrupted". <https://dgit.in/oct22-30>

In the battle against air pollution, will air-purifying helmets help?

An ingenious helmet promoted by a Delhi-based startup promises riders a breath of fresh air, but only at a premium price.

Anup Semwal | feedback@digit.in

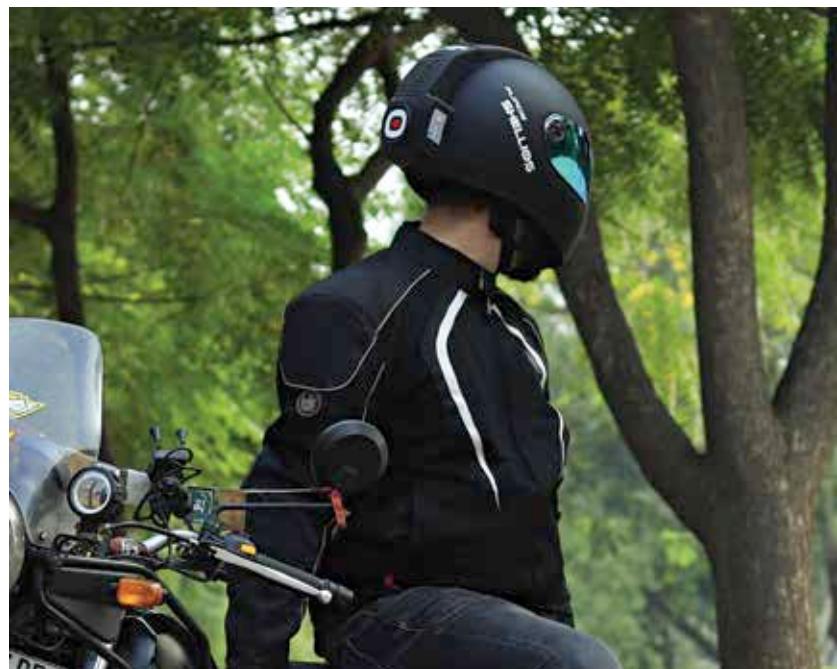
D

elhi-based startup Shellios Technolabs has recently patented an air-purifying helmet. Unless

looked at with a keen eye, the anti-pollution helmet deftly passes off as any other ordinary helmet in the market – until the prying onlooker chances upon its backside.

Though inconspicuous, it is the backside of Shellios's helmet, fitted with a blower fan, a filter membrane and an electronic circuit, that makes it a new ball game in the protective headgear industry: Like commonplace helmets, it protects the skull from injuries during an unlucky crash; unlike commonplace helmets, it also protects the lungs from Particulate Matter 2.5 (PM2.5), which, arguably, is the single biggest environmental threat to human health.

"We have got an air-purification system attached behind the shell of



the helmet," says Amit Pathak, the engineer who designed the helmet from scratch. "When you press the button on the backside, the fan fitted inside the helmet switches on, which pulls in air and passes it through a



filter membrane. The filter sifts out PM2.5 particles, and the clean air is then circulated through the ducting to the breathing area of the bike rider. Further, there is a chin-curtain, so that the polluted air does not re-enter from the front side."

In other words, the helmet, suitably named Puros, filters out lung-damaging PM2.5 particles from the air before it reaches the rider's nostrils. The tests on New Delhi's streets by an independent laboratory confirm that the helmet can filter out more than 80% of pollutants. A 2019 test report seen by Digit shows that



Apple iPhone Ultra

Apple may replace the current "Pro Max" branding with the iPhone 15 series, calling it "Ultra". <https://dgit.in/oct22-31>



iPhone assembly begins in India

Apple has begun assembling its new iPhone 14 at the Foxconn facility in India, a first in years. <https://dgit.in/oct22-32>

the helmet cut levels of PM2.5 particles from 43.1 micrograms per cubic metre to 8.1 micrograms.

THE ECONOMICS OF THE HELMET

In an increasingly eco-dystopian world, an air-purifying helmet seems to be the future of protective headgear, at least on the suffocating highways and stifling streets of New Delhi, which holds the honour of being the most polluted city in the world. Winters are the worst as every year a thick envelope of smog sets in the sprawling city and India's capital practically turns into a horrid gas chamber, with air quality index way off the charts.

During those months, doctors – even the government – recommend against stepping outside, which, so to speak, is a piece of advice so ludicrous that most people, barring a privileged few, can only laugh at it while walking through the deadly smog. Until we somehow conquer the smog and pull down the ever-increasing levels of air pollution, air-purifying helmets can offer crucial protection to the riders of two-wheelers, particularly the bike-riding gig workers, who have no other choice but to expose themselves to Delhi's rotten air.

In the winter of 2016, when Shellios's founder Amit Pathak was developing the idea of an air-purifying helmet in the basement of his house in Noida, this was his original motivation. "2016 was the year when the media covered the very bad air quality situation in Delhi for the first time. Around that time, I was discussing ideas for a new venture. I was doing another business that was into software, but I was desiring to do some-



Amit Pathak taking the Puros out for a test drive

thing in the hardware domain. Digital and physical products were catching my interest. So we were discussing different things," Pathak recalls.

"At that time, air quality in Delhi was really bad and people were buying air-purifiers for their homes. So I started thinking how bad it would be for people who are out on the road, driving occupationally for the most part of the day - the bike delivery people, the ride aggregation drivers, Zomato, Swiggy, Shadowfax, Courier guys, whose entire livelihood is on their two-wheeler. They would be riding anywhere from 12 to 14 hours a day. And so I thought, why not design a new kind of product, a new kind of helmet, which provides them purified air? It wasn't like we set out to do something in the helmet domain – it wasn't really like that. We just wanted to build something which could solve the problem of the bike riders."

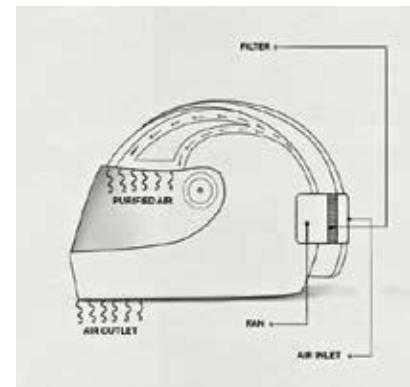
In a couple of years, Pathak, an alumnus of the Indian Institute of Technology - Roorkee, perfected his ingenious design and launched the air-purifying helmet on the market. At ₹4500, the helmet is around four times costlier than a regular one, a price tag way out of reach of the section of population most vulnerable, the delivery gig workers. "We haven't been able to service those people yet, and that's a challenge," Pathak admits. "People who purchased the product till now have

been the people who care about their health enough to buy a relatively expensive helmet. But for the amount of tech that's there inside the helmet, it's not very expensive."

THE GOALS OF FUTURE

Shellios, as a fledgling startup, has a long way to go. For one, the company needs to work on a cheaper model of the helmet, which can serve a broader demographic of bike riders. Another challenge is its weight. At one and a half kilograms, the helmet sits heavy on the neck. In the next models, the company is aiming to bring down its weight to that of a regular helmet.

Outside the design, the main goal of the startup is to expand its marketing and make people aware of their product. Shellios is also looking for opportunities to expand abroad. "There is a lot of interest in the market right now. I have received queries for the helmet even from the cleaner countries - European nations, USA and Canada," Pathak says.



On these many fronts, Pathak and his ambitious company may or may not succeed. But he has certainly opened a gateway to reimagine the future of helmets in a way, which is more pragmatic than disruptive. Maybe the cool, futuristic helmets with heads-up display, augmented reality and inbuilt cameras can wait until we subvert the impending climate catastrophe. As they say, it never hurts anyone to prioritise on the perils of the present than on the promises of an imagined future. **d**

**Taskbar context menu is back!**

Microsoft brings back the taskbar context menu in Windows 11.

<https://dgit.in/oct22-01>

**Twitter bans 57k accounts**

Twitter banned more than 57000 accounts in India recently.

<https://dgit.in/oct22-02>



What is FFS (Fringe Field Switching) LCD display?

How is this new Xiaomi display different than IPS LCD displays?

Deepak Singh | feedback@digit.in



Xiaomi recently introduced a 144Hz Fringe Field Switching LCD or (FFS LCD) display

with the Redmi K50i (review). Xiaomi claims that its liquid FFS display is superior to conventional IPS LCD panels in terms of performance and also allows it to deliver a 144Hz high refresh rate at a competitive price. But what exactly is an FFS panel? How much better it is in practical terms as compared to an IPS LCD display? If

you are a display enthusiast wondering what FFS means, we will try and address all your queries here.

THE LOW DOWN

Let's first make it clear that FFS LCD is not a new technology and the Xiaomi Redmi K50i is not the first phone with an FFS LCD display. The tech was first patented in 1996 and since then has been used in many popular consumer devices. In fact, they were first popularized by Apple which used FFS LCD displays for its first 326 PPI retina displays on earlier iPhones like iPhone 4 and also on the Apple iPad. Since then FFS LCDs have been used in a variety of consumer devices including 244Hz gaming laptops and 8K 120Hz TVs. Compared to conventional IPS LCD panels, FFS or Fringe Field Switching LCDs have relatively higher transmittance, higher contrast, faster response

time and lower power consumption. FFS mode also shows the least colour shift as viewing angle changes as compared to any other LCD technology. On the downside, It's a tad more expensive to fabricate an FFS LCD panel as compared to an IPS LCD panel.

HOW DO FRINGE FIELD SWITCHING DISPLAYS DIFFER FROM IPS LCD?

If you really need to get into the nitty-gritty of the technical difference between the two, some familiarity with the structure and working of basic LCD technology is required. We are oversimplifying things a bit, but basically, LCD displays have a liquid crystal substrate sandwiched between several other layers including two glass polarizers. When an electric field is applied to the substrate, the liquid crystal (LC) molecules re-align themselves, allowing the backlight to pass through. Now the IPS

**WhatsApp bans 23 lakh accounts**

Meta-owned WhatsApp on Saturday said it banned over 23 lakh accounts in India in August.
<https://dgit.in/oct22-03>

**Google receives 37k complaints**

Google received 37,282 complaints from Indian users in the month of August.
<https://dgit.in/oct22-04>

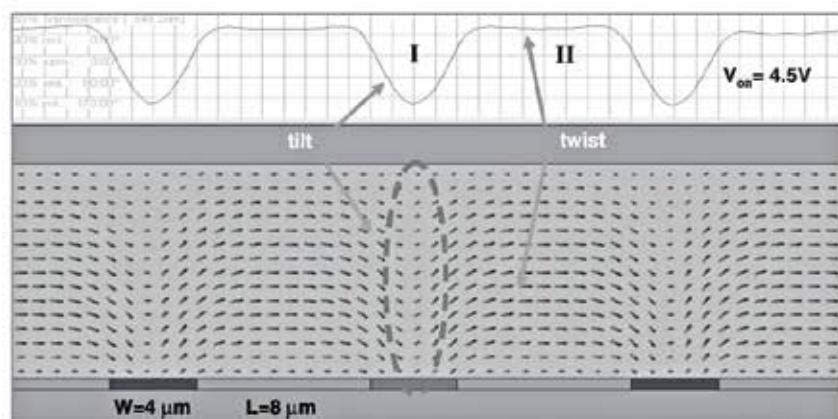
FEATURE

and FFS displays are both very similar and were designed to overcome the problems of poor viewing angles from Twisted Nematic or TN LCD panels. In both IPS and FFS LCD displays, the initial alignment of the LC molecules is in the plane of the cell. When a bias voltage is applied, the generated electric field rotates the LC molecules in the plane, resulting in the transmittance of the backlight. However, the major difference between IPS LCD and FFS LCD displays is in the placement of electrodes. An FFS Cell has more electrodes packed closer to each other as compared to an IPS cell. This results in an extra horizontal component of an electric field or a stronger fringe field above the electrodes. An IPS cell requires a wide distance (l) between electrodes with minimal electrode width (w) to achieve high transmittance, but this also results in high operating voltage. At the edges of the electrode in an IPS cell, there is only one vertical component of the electric field, and thus the LC molecules just above the electrode do not rotate effectively. This results in minimum transmittance in the region right above the electrodes.

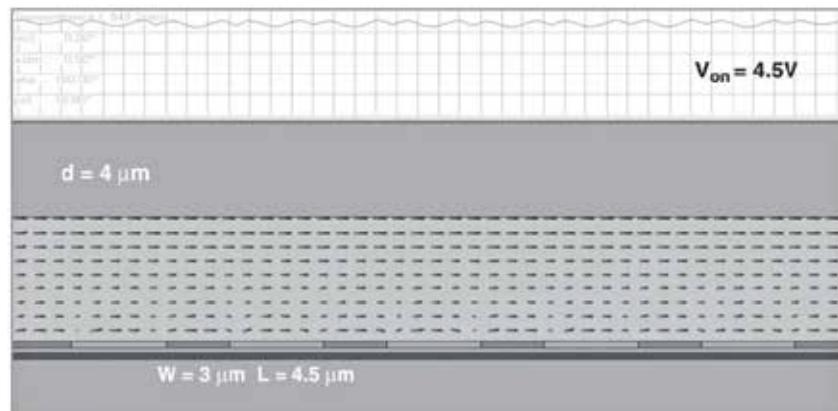
To increase transmittance in an IPS cell, manufacturers can apply higher bias voltage Manufacturers or choose an LC material with a lower response time. In other words, there is a tradeoff involved between transmittance, response time, and power consumption.

By packing more electrodes closely, FFS displays counter these IPS LCD drawbacks while also retaining wide viewing angles. When a bias voltage is applied, the resulting fringe electric field has both horizontal and vertical components. Since the electrodes are closely spaced, the horizontal electric field (which is missing in the IPS cell) is present and it is strongest on the edges of the electrodes. The fringing fields are able to twist the LC molecules above the electrodes. This ultimately results in uniform transmittance across the entire cell.

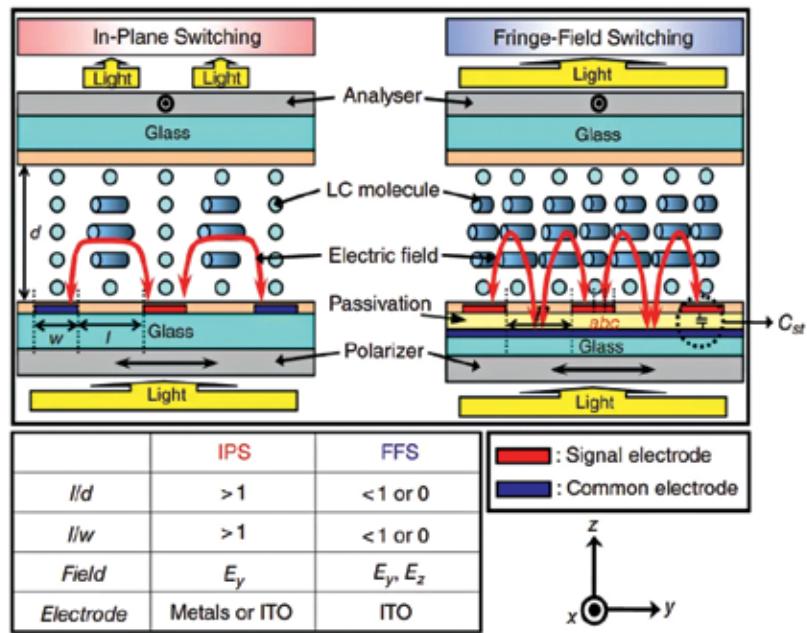
Of course, we are oversimplifying things a bit to avoid making this article overly technical and mathematical, but



IPS Cell - transmittance is low in the region right above the electrode (Region I <> Region II)



FFS Cell - uniform transmittance in the FFS Cell

FRINGE-FIELD SWITCHING (FFS) TECHNOLOGIES

In the FFS device, the pixel addressing electrodes and common electrodes are fabricated as different layers with a passivation layer between them



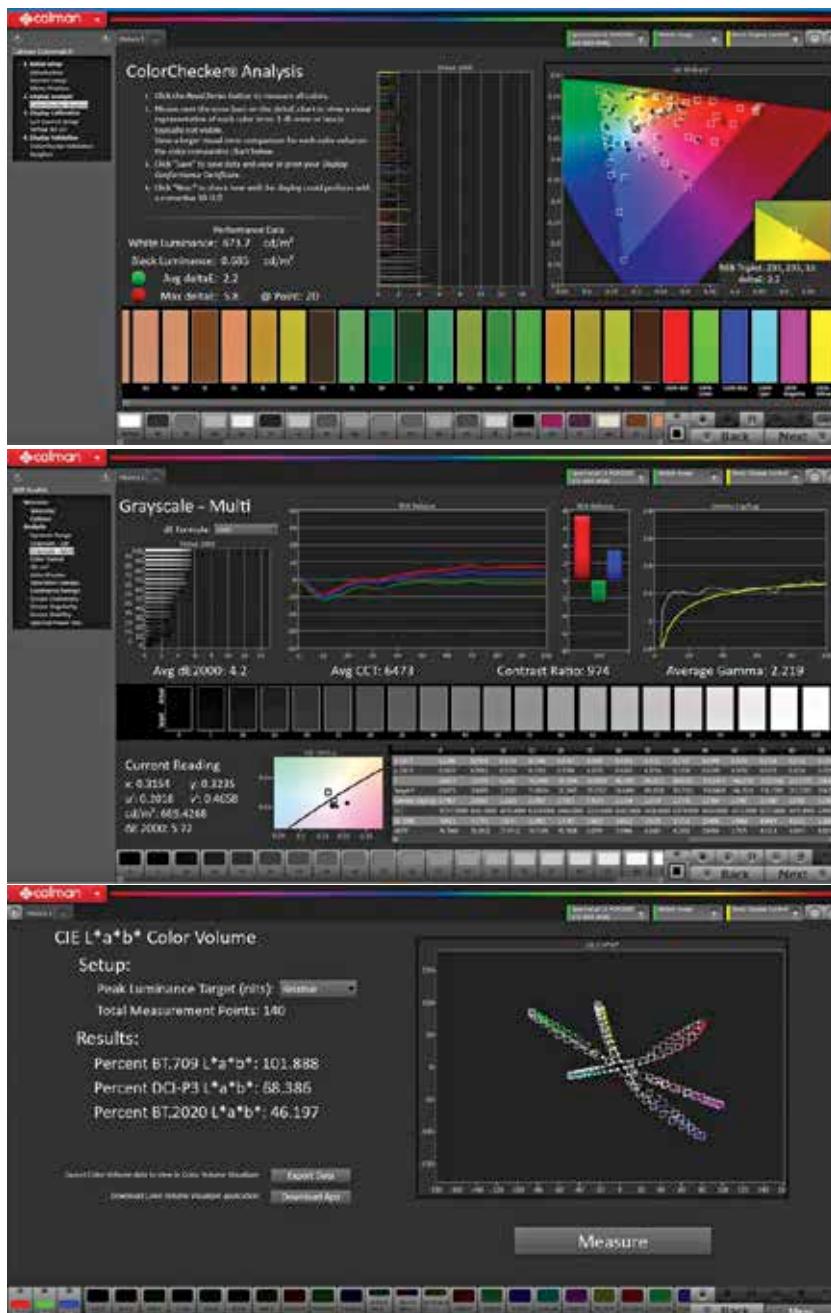
Elon Musk launches 'Optimus'

Elon Musk unveiled a prototype of a humanoid "Optimus" robot that shares some AI software.
<https://digit.in/oct22-05>



OpenAI removes DALL-E waitlist

Users can sign up and start using DALL-E immediately without any waiting period.
<https://digit.in/oct22-06>



that's the basic principle of how an FFS display differs from an IPS LCD display.

Almost all displays in use today are active matrix displays that require a capacitor for every pixel to hold charge till the next refresh cycle. Another advantage of FFS mode is that this storage capacitor (Cst as shown in the image above) is automatically formed in each pixel owing to overlap between the pixel and the common electrodes as shown in the image above. All other LCD modes need to dedicate

some pixel space for the capacitor, resulting in lesser transmittance. This gives FFS an advantage when high-resolution screens with small pixel-size are needed.

FFS LCD DISPLAY PERFORMANCE IN PRACTICE

Well, now that we have discussed the theory, let's talk about the practical experience. We tested the Xiaomi Redmi K50i display in sRGB colour profile using Spectracal C6 Colorim-

eter and Calman Ultimate software.

The K50i delivered 673.7 Nits of white luminance which is on the higher side when compared to IPS LCD panels in the mid-range segment. This falls in line with our expectations of higher transmittance from FFS LCD displays.

Calman recorded an average delta error of 2.2 in the sRGB colour mode, which is again quite good. The greyscale performance was also better than expected.

The red bias increases as we move towards 100 per cent white, which results in the sRGB mode being warmer than standard. The contrast ratio of 974 is again above average, but not particularly exciting. The colour volume of the display also turned out quite decent compared to conventional IPS LCD options.

TO SUM IT UP

So, overall, the FFS LCD displays retain the key wide viewing angle benefits of IPS LCD panels and further offer higher transmittance, higher responsiveness, and better power efficiency. In our testing, the FFS LCD display on the Xiaomi Redmi K50i fared better than the average IPS LCD panels we see in the affordable and mid-range segment. It also allows Xiaomi to keep the cost competitive while also delivering a 144Hz high refresh rate display. But at the same time, AMOLED panels are still better for multimedia content consumption. Siddharth Chauhan aptly summarized his experience with the FFS LCD display in his Xiaomi Redmi K50i review: "It also offers wider viewing angles than normal LCD panels and has high response times. All said and done, it's still not up to the standards of an AMOLED screen which is a bummer in my opinion. The display is decent enough to watch something on YouTube or even a movie on Netflix since it is HDR10 and Dolby Vision compliant. The refresh rate can go up to 144Hz which is great since it allows for increased smoothness but not many games can benefit from such a fast refresh rate yet."



GEEK CULTURE IS
OUR WAY OF LIFE,
AND ENCOMPASSES
MOVIES, GAMES,
COMICS, AND
TRENDS FROM
ACROSS THE GLOBE

THIS MONTH IN CULT:
Boo-Man has some choice words for fanboys of a specific brand. Next in Careers, delve into the world of Foley Artists, who create the very sounds you listen to in movies.



Gen V wraps filming

A spinoff of the popular show, The Boys, called 'Gen V' has finally finished shooting. The announcement was made on the official Twitter handle of the show, as the makers also revealed new images of the cast of the series.

<https://dgit.in/GenVDone>

WHAT'S NEW

WhatsApp enters the film-making business

In an unusual move, Meta-owned WhatsApp is venturing into the film-making business and will premiere its first original short film titled 'Naija Odyssey' on Amazon Prime Video and YouTube. The 12-minute short film tells the story of NBA player Giannis Antetokounmpo, who was born in Greece to Nigerian parents. "The Greek Freak. That's not me, that's not all of me. Naija Odyssey, the cross-culture story of Giannis by WhatsApp. Stream Sept 21 on Prime Video," WhatsApp said in a tweet. The 12-minute short film signifies WhatsApp's foray into entertainment, a first for a social media messaging



platform. However, 'Naija Odyssey' appears to be a way to promote WhatsApp as Antetokounmpo recently signed an endorsement deal with the company, another first for the platform, reports

Variety. The 12-minute movie will also be released on WhatsApp's social media accounts, including its YouTube channel.

<https://dgit.in/WAFilm>

Twitter now more friendly for visually impaired people

Twitter has rolled out a feature to help visually-impaired people read images embedded with the tweets via its new image description reminder. The new image description reminder will encourage more people on Twitter to add helpful descriptions to the images they tweet, the company said in a statement. "Our new image description reminder is a feature that



prompts you to make a good habit of adding alt text to every image you upload and share on Twitter," said the company. Once enabled, the feature sends you a prompt on web and

mobile reminding you to add alt text whenever you're about to Tweet an image. "We're rolling out our new image description reminder globally, and most people on Twitter have access to it already," Twitter announced. The descriptions are useful not only to people using screen readers, but to those in low-bandwidth areas and with web phones.

<https://dgit.in/TWFriend>



Instagram is internally testing new tipping feature

Multiple reports have suggested that the Meta-owned photo and video-sharing platform Instagram is internally testing a new tipping feature for creators on the platform.

<https://dgit.in/Instatip>



YouTube bringing new video page on mobile, web

Google-owned streaming platform YouTube is rolling out a new video page that tweaks several elements and, most notably, unifies the design across Android, iOS, and the web.

<https://dgit.in/NewYT>



'Chainsaw Man' trailer reveals ending songs

The main trailer of the upcoming 'Chainsaw Man' anime, much to the delight of fans, is packed with action. The trailer also revealed the show's 12 different ending songs.

<https://dgit.in/CSMan>

Weakest of all

With a total of 3,159 vulnerabilities as of 2022; Chrome is the most vulnerable browser available. <https://dgit.in/oct22-71>

**WhatsApp Premium is here**

The optional plan will allow businesses to link 10 devices and create a custom business link. <https://dgit.in/oct22-72>

Foley Artists

Click clack... click
clack... click clack

Satvik Pandey | satvik@digit.in

Ever noticed the slight rumbling of the bush that builds up the tension in a horror sequence? Or that sound of footsteps in an empty hall with a shadow appearing with a knife in a murder mystery film? Well, then, you are already familiar with the career that we will be talking about here. You might not know what the people behind creating those sound effects are called. Well, we have you back. Don't worry. They are called Foley artists. And in this article, we will be talking you through the history of the art, its modern relevance, and how you can build your career as a Foley artist if you want.

IN THE HISTORY BOOKS

Let's not waste any time and cut to the chase. The name foley, very interestingly, comes from an individual whose identity was kept under wraps when

he started working with audio for films. His name was Jack Foley. Born in New York in the year 1981, Foley had reportedly moved to California because he did not like the weather of NYC. There he started working as a stunt double. Time passed, and Foley changed towns and professions before he wrote a number of scripts for Universal studios, which took the shape of silent films. He then also started directing insert shots for his films. These are the shots which are shot by a second filming unit and are usually used to fill in the gaps between the main sequences of a film.

Over time, silent films went out of the equation and sound was added to films for the first time. Foley had remained active and was working actively in Hollywood all these years. After seeing the effect addition of sounds had had on the films that were being made, he called for the addition of sound effects. It was then when Jack Foley started working on sound effects. Recalling his techniques, George Pal told, "Jack added the footsteps, the movement, the sound of various props-all in one track. He used a cane as an adjunct to his own footsteps. With that cane, he could make the footsteps of two to three people. He kept



Jack Foley



Three new Witcher games

CD Projekt Red has announced that the Witcher franchise will get three new games in the future. <https://dgit.in/oct22-73>



Twitter multimedia tweet

It will be available on both iOS and Android. Ensure you have the latest version of the Twitter app. <https://dgit.in/oct22-74>

a large cloth in his pocket which could be used to simulate movement."

His talents really came in handy during the filming of the film 'Spartacus'. In the film, a sequence showed the actors walking in leg chains. An account of the events that followed states, "The director was all set to return to Italy and restage the scene to capture the sound effects. Jack stepped in and did the whole sequence with footsteps and key chains." Legend has it that his identity was kept under wraps by Universal studios. It was only when his protégés started working for other production houses that this art came to the surface. Thus, came to be the art of sound reproduction that we see being used in films and all other forms of audio-video content these days, with the artist being named after Jack Foley.

WHAT'S THE PROFESSION?

As defined by the University of Silicon Valley, "Foley artists reproduce every day sounds like waves crashing, rain coming down, cars passing by, punches, kicks, wind blowing, doors slamming, and other ambient sounds. This is one small part of the post-production process that creates a film or TV show." The sounds produced by foley artists are subtle, and many might not even pay much heed to them. But, they make a world of difference and are increasingly becoming a part of all forms of content.

So, it is very likely that the film or TV show that you just finished binging had a foley artist named in the credits. In modern-day content production, there are three major kinds of foley sound:

1. Feet: This is also popularly known as footfalls or footsteps. Here, the main task of the artist is to recreate an accurately staged sound of footsteps using all sorts of props and surfaces. Artists working in this faction are called foley walkers.

2. Movement: As the name suggests, these sounds include the ones produced from acts like a person sitting down and grabbing a wallet from their bag. These sounds mainly act as an enhancer to the scene in which they are being used.

3. Specifics: These sounds include everything that the other two categories miss out on. Sounds such as those of the roaring of a tiger in a scene or helicopters flying over the heads of the actors in a scene are produced by artists working on specifics.

However, with the advent of the internet, a whole new avenue has opened up for foley artists to explore in this ever-growing digital world.



Do I sound like a tree now?
Huh?



Hey Alfred! Let's record you chewing a burrito!

is a necessity now. Even some podcasts which are centred around story-telling make use of the exceptional skills of Foley artists. Hence, the growing demand for Foley artists. They are paid handsome salaries for accurate reproduction of chewing sounds. Sounds... Enticing? Well, the road to becoming one is not that easy.

WHERE TO APPLY?

Well, it may sound overwhelming, but there is not a defined path that you can take en route to becoming a Foley artist. The best way is to undertake a degree program in film making or video production, wherein you are taught how to use sound to enhance the content that you are producing. From there on, it is really the wild wild west, where the only way ahead is defined by the principle of survival of the fittest. Another good way to get started is to take your favourite pieces of content, stripping them off the audio and then work your way to creating your own sound stage for it. It is a healthy exercise to gauge your passion for the profession while also building a healthy portfolio of your own. The best shot that you have at making it into the industry, be it in the west or on your home ground, is to intern or be an apprentice to a practising Foley artist. It is not just us suggesting this, Jay Peck, who has worked on shows like *succession*, as published by *CareersInFilm*, also says the same thing – "You do not need a degree to become a Foley Artist. I don't think there are any schools that offer that. You can get a degree in filmmaking and may have the opportunity there to work on student films, however."

So when push came to shove, the world looked to Foley artists to come in and produce ASMR content for them. Music for video has always been essential. However, for a group of netizens, it

**Pixel 7, 7 Pro to arrive in India**

Tech giant Google has confirmed that it is all set to bring its next-generation Pixel 7 series to India. <https://dgit.in/oct22-27>

**OnePlus 11 Pro leak**

The leak reveals 100W charging, SD 8 Gen 2 SoC, and a redesigned rear camera panel. <https://dgit.in/oct22-28>

Apple iPhone 14 Pro Max

When does it end!?

Boo-Man | boo@digit.in

Early last month, that time of the year arrived again. Executives from Apple Inc. took the stage on September 7 to make some underwhelming announcements as usual. If my memory serves me right, in the last couple of years, apart from the iPhone 12 redesign, where they went back to the older iPhone 5/4-esque design language, there hasn't been anything that would warrant a remotely positive response from a neutral follower/part of the tech world.

Sadly, there is one faction that has still been hyping up the new launch and fanboying over the "revolutionary" pill-hole punch design. No, I am not calling it the Dynamic Island. I will NOT be an accessory to Apple's neurotic marketing lingo. Also, I would like to humbly request all brands not to fall for it (i.e. the neurotic marketing) this time around. Do not latch on to a trend because Apple started something. Samsung, I am looking at you. Don't introduce an "Interactive Pill" in your next flagship, please! I'll be back here writing another Booman about that as well!

Now, coming back to the phone and completing this column before I burst a nerve in my brain. We

were talking about the changes they made to the display of the phone. Well, the new pill-hole punch cutout did free up some real estate. But what is the point of it when I am only getting a sliver of display between the camera and FaceID cutout and speaker cutout? At least when we had that big and ugly notch, we could effectively zone it out. Now, it remains to be a constant eye sore.

About the small widget "invention" that is around the cut-out. What is so revolutionary about it? Within days of its launch, there were developers across the globe emulating the same exact thing on other operating systems. I know that reverse engineering an idea is relatively easy. But you have to understand that it is not the "most innovative" thing ever.

... and this opens another tangent. I'm just about done with "best ever", "most revolutionary" and other superlatives that Apple attaches with everything it does. Use it once or twice, and in places where it's legit and I, or for that matter, anyone would not complain! But STOP hyping everything as the "best there has ever been"!

Give me a second to calm down a bit. You may have read our 6-page coverage of the event earlier in the magazine and would have noticed that one of our writers noticed that Apple did not include a lot of things that should have been there. At least on the iPhone 14 Pro Max, if not the "non-Pro" class of devices.



Lastly, this phone was so poorly optimised upon launch. There were benchmarks that we could not run at all during our testing. Then, there was the camera shaking issue where the "revolutionary" and "greatest ever" camera system of the iPhone 14 Pro Max failed miserably on some social media apps. I mean, making a closed ecosystem is one thing. But straight-up screwing up the pictures taken by third-party apps is a step too far. Do not come after me with a lawsuit. Tim Apple, you and your team fixed it, and for that, I'm thankful (maybe?).

Also, what is this saviour complex? The whole keynote seemed like Apple was trying to tell the viewers that they are doomed if they do not buy into the Apple ecosystem. I sometimes like the cinematography that you put into the presentation. But, what is this high that you all are riding on? Next we will see Apple being the saviour again and coming to save the day during all the meetings that we have with their laptops. I know the artists will be next. They will say, "the world is digital, so make your art digital using iPads otherwise no one will pay heed to what you create". I hope it is not the case but there's no end to it with these guys.

On the topic of watching out for things, I am reminded of the time when they exclaimed that their latest and greatest car crash detection system will save the world! Well, as it turns out, it is not working at all. It is not just us. It is the world media that has been reporting on the fact that Apple's latest life-saver doesn't work..

Before I bust a nerve, let me end my writing session. I will reserve some of it for the next month. I know what to talk about next month. Hint: It is a chonky product.



SCIENCE IS THE PATH TO KNOWLEDGE, AND FINDING OUT ABOUT HOW OUR UNIVERSE WORKS. YOU CAN'T BE A GEEK AND NOT KNOW YOUR SCIENCE!

THIS MONTH IN SCIENCE:

This month in science, we take a close look at the modern lifestyle and its adverse effects on the human brain, in Infoporn and in Space Age, we explore asteroids and how they could bring about new avenues of settlement on different planets.



Resizing tumours

A team of US engineers have created a small, autonomous device with a flexible sensor that can be adhered to the skin to measure the changing size of tumours below. On a bigger scale, it could lead to promising new directions in cancer treatment.

<https://dgit.in/ResUSA>

WHAT'S NEW

Indian, US, and Spain surgeons win robotic surgery innovation award

Robotic surgeons from the US, India, and Spain were named the top three winners in the KS International Robotic Surgery Innovation competition, as robotic surgery slowly becomes mainstream. The winners were selected by an international jury from Oxford and Stanford Universities and New Delhi-based AIIMS from the fields of urology, gynaecology, general surgery, hepato-biliary-pancreatic surgery, colorectal, head and neck, paediatric and joint replacement surgeries. The winning entry of Dr Jihad Kaouk, department of urology, Cleveland Clinic in Ohio was titled 'Single Port Robot-Assisted



Kidney Transplantation Extraperitoneal Approach' in the unique competition organised by Michigan-based robotic surgery evangelist Vattikuti Foundation.

<https://dgit.in/InnoAward>

Garuda Aerospace maps 7,000 villages in UP

The Chennai-based Garuda Aerospace, a Drones-as-a-Service (DaaS) startup, has successfully mapped 7,000 villages in Uttar Pradesh under the Svanitva Scheme.

The company won the tender from the nodal agency, The Survey of India in September 2021.

As per the tender, Garuda Aerospace was authorised to deploy drones for large-scale mapping and digitisa-

tions of land records in rural areas, thereby empowering land-owners and farmers



with accurate digital land certificates and a unique identity that enables them to get a layout of their entire

land with precise and all information. As the winner of the largest order, Garuda Aerospace deployed 15 fixed-wing drones for the purpose of mapping at the speed of 8 to 10 sq kms per hour.

Of the 140,000 villages, Garuda Aerospace has successfully mapped 7,000 villages, the highest number of villages mapped by any drone company within a year.

<https://dgit.in/UPMap>



NASA's new clothing line

NASA has revealed that the London-based company Fifty One Apparel is using its technology to help women to stay comfortable during menopause through a range of temperature-regulating clothing.

<https://dgit.in/NASAClothes>



NASA to address orbital debris

The US space agency Nasa will fund three studies to understand the growing problem of space junk. Bhavya Lal, associate administrator for the OTPS at NASA, said that orbital debris is one of the great challenges of our era.

<https://dgit.in/Debris>



The voice COVID test

A smartphone app can accurately detect Covid-19 infection in people's voices with the help of AI, researchers revealed. The team claimed that the app is more accurate than several antigen tests and is cheap, quick and easy to use.

<https://dgit.in/Thevoice>

THE MODERN BRAIN

The modern lifestyle's effect on our minds

Satvik Pandey | satvik@digit.in

DECLINING MEMORY



A recent study published in the journal *SLEEP* titled, *Insomnia disorder increases the risk of subjective memory decline in middle-aged and older adults: a longitudinal analysis of the Canadian Longitudinal Study on Aging*, has found out that insomnia increases the chances of memory loss in older adults. The co-lead author of this study, Nathan Cross, said: "We found that insomnia specifically was related to worse memory performance compared to those who have some insomnia symptoms alone or no sleep problems at all."

During the course of this research, the subjects were divided into the following three categories:

- People who reported no problems in their sleeping patterns
- People who had some insomnia symptoms
- People who had developed probable insomnia

Before starting out, they had set a baseline at the figures and observations reported in 2019. And after the segregation, they compared the reports from 2022. The people who were in the latter two categories of the three that is - people who had some insomnia symptoms and people who had developed probable insomnia symptoms, were the ones who had a clinically diagnosed memory loss problem, or reported it themselves. The researchers also pointed out that "They (people from the latter two categories) were also more likely to show higher prevalence of anxiety, depression, daytime sleepiness, have breathing interruptions during sleep, other sleep-related issues, smoking and a greater body mass index (BMI) score."

All hope is not lost, though, as the researchers also told that sleep disorders like insomnia could be treated. However, a crucial element that remains is the diagnosis of the disorders, which needs to happen at an early stage for their treatment to go ahead effectively.

<https://digit.in/Study1>



SLEEPLESS AND SELFISH

The title of the article published by Berkeley News which we have also mentioned here, says a lot about the findings of the research study titled, *Sleep loss leads to the withdrawal of human helping across individuals, groups, and large-scale societies*. The findings of this research study point out the fact that the lack of sleep essentially blunts the fundamental human nature of helping each other when in need.

Through the course of the study, multiple experiments were conducted, one of which studied the generosity of the people residing in areas where Daylight Savings Time comes into effect every year. Here it was found that there was a 10 per cent decrease in the charitable giving of the residents compared to that of the people residing in areas where Daylight Savings Time wasn't in effect.

It is not a recent change, though. In their comments about the findings of the study, the lead researchers involved with this project noted that there had been a shift observed in the last 20 years. By studying the changing sleeping patterns and the subsequent behaviour of the subject under study, they came to the common conclusion that lack of sleep did not only cause harm to the physical health of individuals but also had other psychological effects. One of which is the lack or, to better say it, a degradation in the human attribute of generosity. They expressed their concerns about this shift, pointing out that it has been a part of the basic fabric of human civilisation.

<https://dgit.in/Study2>



LOCKED INSIDE

It is not just our lifestyle that is affecting the way in which our brains function. Being locked inside for extended periods of time during the pandemic has also caused our brains to be affected adversely. As the lockdowns and travel restrictions ease out, people have started to step out and slide into their daily routines. However, a recently article published on Science News suggests that there has been a distortion in the sense of time of some people after the pandemic (Link to the article: <https://dgit.in/PandEmic>).

The author of the article, Sujata Gupta, pointed out several research studies that have been conducted after the pandemic had started receding and all the evidence points in the same direction. One such study that was mentioned in the article where "two surveys of more than 5,600 people taken during the first six months of the pandemic in the United States showed that roughly two-thirds of respondents reported feeling strangely out of sync." These findings, coupled with the other side effects like the phantom phone ringing, which we covered in-depth in July on our website (Link to article: <https://dgit.in/PRinging>), have left behind many questions for us to think about, such as - Have we truly recovered from the raging storm of troubles that the pandemic was?

Let us know your thoughts on this question and the ill-effects of an unhealthy lifestyle by writing to us at editor@digit.in.



ASTEROIDS: DESTROYERS THEN, SAVIOURS NOW?

Asteroids have had an identity crisis and we look at where they stand now

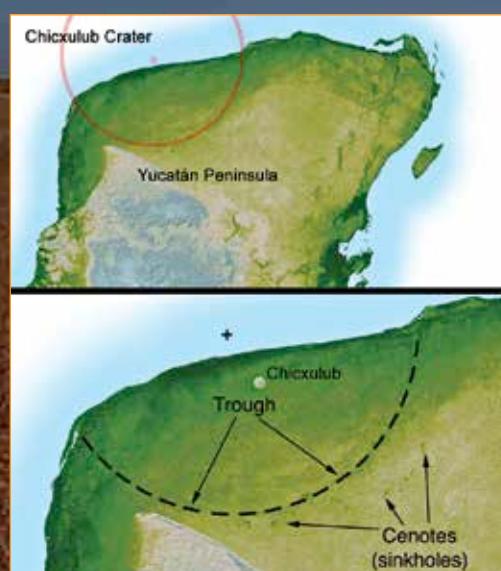
Satvik Pandey | satvik@digit.in

DESTROYERS?

If you have ever had a discussion about the extinction of dinosaurs, then you would have definitely come across the theory that they were wiped out by an asteroid impact. Well, after years of being floated around in research centres and online forums, it is being officially theorised that it was not one, but two asteroids that wiped out dinosaurs from the face of the planet.

The name of the asteroid that so far has been associated with the extinction of dinosaurs is Chicxulub. The crater formed by the impact of this asteroid can be found in modern-day Mexico. The dinosaurs that have been said to be affected by the impact of this asteroid, were the ones dwelling on land and air. However, the newly discovered asteroid crater, called Nadir, is the one that is being held responsible for making the sea dwelling dinos.

The location of the crater formed by the impact is off the coast of West Africa, hundreds of metres beneath the seafloor. The radius of the impact crater has been found to be about 8.5 kilometres. Researchers who published their findings in *Science Advances*,



have claimed that if further research is able to back their hypothesis, their speculations that Chicxulub's cousin was in fact the one that wiped the non flying asteroids off the face of Earth back in the day. "The idea that [Chicxulub] had help — for want of a better phrase — would have really added insult to serious injury," says study co author Veronica Bray, a planetary scientist at the University of Arizona in Tucson as reported by *ScienceNews*.



AIDING PLANT GROWTH

While asteroids have had a history of having destructive effects upon landing on Earth's surface, recent studies have made many rethink this notion of asteroids being destroyers. A recent study, published in July this year, suggested that we could soon see astronauts consuming salads that were grown using extraterrestrial soil. The study titled CI Asteroid Regolith as an In Situ Plant Growth Medium for Space Crop Production, published by The American Astronomical Society contained enough evidence to suggest that it was indeed possible to grow crops as we do here on Earth, in space too! This breakthrough is important because if we are looking to go ahead and settle on other planets, then providing adequate nutrition to the populous will be an important thing to consider while drafting the policies. Right now, the primary method to feed astronauts is through pre-packaged meals. While this may be enough for missions that last a few weeks at max, in the long run, we will have to devise ways in which we can produce enough food in the place where the travellers are headed to. And, this discovery could play a pivotal role in taking us in the right direction.

The researchers in the paper noted, "Right now, our current method of feeding astronauts

consists of resupplied prepackaged food from Earth, which is unsustainable for long-term missions. Using planetary resources via in situ resource utilization to grow crops is the next step toward sustainability in space. Asteroids are an abundant space resource and should not be overlooked when considering crewed missions. In particular, the primordial CI carbonaceous asteroids are of interest

limitations. These samples had been collected from the Hayabusa2 spacecraft upon its return to Earth. However, further investigation into the matter is necessary to determine the mitigation strategies to ensure that the regolith in space can sustain plant life in the long run.

LOOKING BACK IN TIME

Well, if there was still a doubt lingering in your mind about the utility of information that asteroids and their related materials can provide us, then this should seal the deal for you. The samples collected from Hayabusa2, when it came back to Earth. Upon its landing in Australia, researchers for the first time ever, got their hands on asteroid Earth. And, when it was studied further by the folks at Japan Aerospace Exploration Agency.

Hayabusa2 had been exploring Ruyugu for a long time before it came back to Earth, bearing two smidgens of dirt from the asteroid. It was an ancient, carbon-rich asteroid, and its texture has been described to have the "texture of freeze-dried coffee". These details



because the regolith is suggested to contain soluble elemental nutrients, such as phosphorous and potassium, that crops can use for growth and development."

The results of the study give positive indications that the stimulant present the studied sample of the CI Asteroid Regolith is enough to sustain plant life, with certain

are not as relevant compared to what the researchers found out after conducting their studies.

The study of the 1,534 grains of asteroid material that had been brought back to Earth has been crucial in understanding how the asteroids were formed and the way in which they hold themselves together. ■

DIWALI TECH GIFTING GUIDE

Find the perfect #Gifts4Geeks, at all budgets



It is that time of the year! It is the season of festivals and gifting. So, we thought why not bring to you, an ultimate guide to Diwali gifting for geeks. Only a true geek understands the choices of the other. So, who better to write a guide for you than the ones in the Digit office. If you find any gift that you'd consider buying from our list or beyond, make a social media post on the platform of your choice using #Gifts4Geeks, tag us, and let us know about your purchase!

INDEX

TEAM DIGIT'S PERFECT GIFTS	63
BUDDING GEEKS (KIDS BELOW 15)	65
MOUSE & KEYBOARD WARRIOR (GAMERS)	66
HIT THE RIGHT NOTES! (AUDIOPHILES)	67
THEY LOVE WORKOUTS! (FITNESS ENTHUSIASTS)	68
THE SIGNIFICANT OTHER	69
LEARNING AND WORKING FROM HOME	70

TEAM DIGIT'S PERFECT GIFTS



Satvik

Victorinox Swiss Army Knife - Swiss Champ

A perfect gift for me is something that has a thought behind it, exceeds the expectations of the receiver, and has a taste of my relationship with them in it.



Wipro 16A Wi-Fi Smart Plug

A perfect gift for me is something that isn't lying around some corner of the house collecting dust, and something that will actually be of use to the receiver. Plus, everytime they use it, they will think of me!



Dhriti



Vasan

Anchor by Panasonic Spike Guard 4-Way Socket with Single Switch (White), 240 V, 1440 Watt

I think this would be a perfect gift as the number of electronic devices we use are only increasing and this would be a convenient way of charging multiple devices at a time and have them all in close proximity.





Soham

Sony 55-inch X80AJ

I got this as a gift for the family (living room). Upgrading from an 50-inch 1080P Panasonic IPS TV(which found place in parent's bedroom). Avoided the lure of OLED as I'd have to go way higher to get a good OLED panel. The entry level OLEDs were not as bright and the panels are too reflective for my liking. This Sony TV has an excellent IPS panel from color accuracy and viewing angles PoV. Paid just 55K for the 55-incher. Had Samsung frame as a close contender but I can't live with color shifts of a VA panel. Will move to a 65-inch OLED next, hope to see them come to realistic price points in next 3 years. Hope to score a 65-inch OLED for 65K :-)



Sushant

Samsung Buds 2 Pro

Samsung Galaxy Buds 2 Pro make for the perfect gift for me. These are one of the best TWS earbuds out there, and lucky enough also fit my budget. The Galaxy Buds 2



Pro offer balanced sound and very good active noise canceling – two factors that dominate

my buying decisions in this product category. So if you're someone like me, then the Galaxy Buds 2 Pro come highly recommended.



Ali

Husqvarna Svartpilen 250

Those sleek Swedish lines, more than one hundred years of motorcycling heritage, and a name most people can't even pronounce. Just look at it and tell me that's not the most perfect gift you can think of at any given moment.



Shrey

Lego Death Star Set

Ahhhhh yes... The Lego Death Star. As an aspiring toy collector, this little collectible would no doubt be the jewel in my crown, the feather in my cap... blah... blah... you get the idea. However, there is a problem. You see, the set has now been discontinued by Lego. So in order to get their hands on this piece, you would have to navigate the tricky resale market in order to find the best deal.



AORUS F048U Monitor

Buying a gift takes me time. Mainly because a perfect gift, to me, is something that portrays the time, effort and, above all, thought, that has gone into picking that particular one. Anyone with the means can throw money and gift something pricey. But only real insight into the person receiving the gift can truly make the thought count. That's rare, and that, to me, is much more memorable.



Prakrit



Dogs vs. Cats Chess Set

Make the cats and dogs play one of the most intellectually challenging game of all time!

<https://digit.in/DVChess>

Price: ₹22,601



SparkleBox 24+

Experiments Kit

This is one gift that every kid who shows the signs of joining the guild of geeks would definitely love!

<https://digit.in/SPBox>

Price: ₹1,100

BUDDING GEEKS (KIDS BELOW 15 YEARS)

Create Your Own Reel Viewer

This Diwali, bring the joy of old school photo viewing to a budding geek whom you love! Pass on that love for making your own reels, the actual ones, to a zoomer near you!

<https://digit.in/IRLReel>

Price: ₹2,398.00 - ₹4,804.00



Roinco Multipurpose Starter Kit for Arduino IDE

If you are looking to kickstart the interest of a budding geek you know into the world of electronics and computers, then Roinco Multipurpose Starter Kit for Arduino IDE is the perfect gift to buy!

<https://digit.in/ArdIDE>

Price: ₹3,999



Harry Porter Music Box

The budding geek that you are gifting this to, would already be a fan.

If not, give it a few years.

<https://digit.in/HPMB>

Price: ₹469



Explosion Lamp (DIY)

Make the perfect gift to spice up the space that your favourite

young geeks plays/works in!

<https://digit.in/ExLamp>

Price: ₹200



Lord Of The Rings: The Card Game

You've gotta start 'em young! So get them

started with this card game!

<https://digit.in/LOR>

Price: ₹17,097



Wooden Telescope

Definitely better than the Star Wars comic that you were planning

to buy! Help them look at the stars.

<https://digit.in/Tele>

Price: ₹ 745

MOUSE & KEYBOARD WARRIORS (GAMERS)



HyperX Streamer Starter Pack

A combo of the HyperX Cloud Core Headphones along with the SoloCast Mic to get started with streaming

<https://dgit.in/HyperIT>

Price: ₹5,990



Sony PlayStation Plus 12-Month Subscription

A perfect gift for PlayStation users which will give them new games every month and is also set to last you an entire year which makes it the perfect gift to repeat every year;

<https://dgit.in/PSP>

Price: ₹2,999

Nintendo Switch

The Nintendo Switch is the best gift that you can buy for a gamer who's always on the go. With a vast selection of games and a proven history of lasting for a fairly long time on a single charge, the Nintendo Switch is easily every gamer's best on the go gaming companion.

<https://dgit.in/SwitchIT>

Price: ₹25,640



AntEsports MK1300

A budget friendly Mechanical keyboard which is perfect for enthusiasts looking to dive into the vast world of mechanical keyboards.

<https://dgit.in/AntKey>

Price: ₹2,124

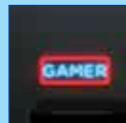


Gamer Cushion

Personal touch in gifts is always a good idea. So you can pick this personalise it, and make it a delightful gift.

<https://dgit.in/Cushy>

Price: ₹425



Gamer Neon LED Light

This Diwali, make sure that your gamer friend wears their gamer tag with pride with this neon LED light.

<https://dgit.in/Neon>

Price: ₹ 2,999



Retro Machine

This small working replica of a retro video game makes for a great gift for someone who loves that feeling of nostalgia.

<https://dgit.in/Retro>

Price: ₹5,599



Game & Watch: Super Mario Bros

Well, who doesn't love Super Mario Bros? Especially the nostalgia that comes with it.

<https://dgit.in/MaRio>

Price: ₹4,299



Beyerdynamic DT990 Pro

A perfect set of headphones for any audio enthusiast out there looking for customisations to the very little things.

<https://dgit.in/DT990>

Price: ₹13,999



Marshall Amplification MS-2R Red Micro Guitar Amp

This mini amplifier sounds great and is a perfect choice for any guitar player on the go.

<https://dgit.in/MS2R>

Price: ₹3899

HIT THE RIGHT NOTES! (AUDIOPHILES)

CLAW Stag Portable Vinyl Record Player

A portable vinyl player which is a good choice for any audio enthusiast who is into retro audio technology

<https://dgit.in/Recored>

Price: ₹5290



Audio Technica ATH-M20X

A great pair of headphones which can be considered as more of a budget option for audio enthusiasts.

<https://dgit.in/ATH>

Price: ₹4499

SonyWH1000 XM4

One of the best pair of TWS earbuds we have tested ever! Trust us

when we say, you can't go wrong with this.
<https://dgit.in/1000XM4>

Price: ₹16,990

Creative Sound Blaster Play!

The best gift for amateur audiophiles. This would help

them drive their headphones better.
<https://dgit.in/SoundBlast>

Price: ₹2,394

5-Way Headphone Splitter

This gift is a boon for anyone who

enjoys music with their friends!
<https://dgit.in/Splitit>

Price: ₹449

Blue Yeti Nano

We have this one in the Digit studios and it doesn't disappoint. Perfect companion

for ones who are love recording.
<https://dgit.in/NanoYeti>

Price: ₹7,995

THEY LOVE WORKOUTS!

(FITNESS ENTHUSIASTS)



Apple Watch Ultra

One of the most expensive items in this entire cover story, the Apple Watch Ultra is one of the best smartwatches out there to give to someone who is into extreme sporting activities.

<https://dgit.in/AWUltra>

Price: ₹89,900



Noise Colorfit Pulse

A smart watch which boasts 100 sports modes along side a heart rate monitor

<https://dgit.in/NCFit>

Price: ₹1,999

Twelve South ActionSleeve/Armband

This simple looking sleeve, takes the Apple Watch and turns it into a more versatile arm band.

<https://dgit.in/AWBand>

Price: ₹3,250



Bose Soundsport Sweatproof Headphones

If there was ever a list of the ultimate workout earphones, then these would definitely occupy one of the top spots. The Bose Soundsport Wireless Earphones retail around the 10k mark and are one of the best gifts for anyone who has an active lifestyle.

<https://dgit.in/SSW>

Price: ₹8,699



High Lumen Rechargeable LED Headlamp

This headlamp is affordable and can be

a literal boon for the adventurer kind.

<https://dgit.in/HLamp>

Price: ₹549



Hyperice Hypervolt GO

After a long trail run, what do you need? A massage, right?

Well, this gives you exactly that!

<https://dgit.in/HypVolt>

Price: ₹16,939



JBL Clip 4

This speaker is a perfect companion for you on all your rides and hikes and

can even rock your corner of the gym.

<https://dgit.in/Clip4>

Price: ₹4,298



BLENDJET 2

What better gift can you give a fitness enthusiast than the one that helps them

follow a healthy diet?

<https://dgit.in/BJet>

Price: ₹4,299



Kindle 10th gen e-Reader

If your significant other is the kind who likes to stay in and read while sipping coffee, an eReader can be one of the best gifts you can give to them.

<https://dgit.in/K10G>

Price: ₹7,999



Cosmic Flame Lamp with 10W Bluetooth Speaker

A speaker that also serves the purpose of providing ambient lighting for your SO's room, bound to impress them nonetheless!

<https://dgit.in/CosPow>

Price: ₹5,000

THE SIGNIFICANT OTHER



Floating Levitating Rotating Plant Pot

This levitating plant makes for the perfect gift for a significant other. Even if they are not a geek, the science that goes behind making a potted plant float would flatter anyone.

<https://dgit.in/LevPot>

Price: ₹9,899



Tynimo B2 Classic Retro Bluetooth Speaker

If you are looking for a speaker that adds a tasteful retro touch to your significant other's space, then this speaker is the perfect choice for you.

<https://dgit.in/RetroMusic>

Price: ₹2,199



Nasofilters

White and skin coloured masks that allow you to eat outside without a mask.

<https://dgit.in/NasoFit>

Price: ₹90-300



DJI Mavic Mini Fly More Combo Drone

Let the shots fly! In a good way.

<https://dgit.in/NotMaverick>

Price: ₹59,999



Charging Cord Bracelet

A bracelet, a charger... What about both!?

<https://dgit.in/ChargeWrist>

Price: ₹7,118



Utility Bracelet

Get a multi-functional knife with a flat head screwdriver on its tip!

<https://dgit.in/WristUtil>

Price: ₹5,050

LEARNING AND WORKING FROM HOME



ErgoYou - Electric Height Adjustable Table

You may have your favourite tech YouTuber use one of these, so why not give the gift of a better posture to someone you know too!

<https://dgit.in/BackSupp>

Price: ₹31,999



BYLLAN Laptop support

One of the best gifts for anyone working from home, as it enables them to take their laptop and work from literally any spot in the home that can fit a chair, helping them break free from the shackles of their desk.

<https://dgit.in/LapDesk>

Price: ₹1,190



Syska Wi-Fi Smart Plug

Giving commands to your electronics is cool and helps when you

don't want to break your flow of thoughts.

<https://dgit.in/WIFIPlug>

Price: ₹699



Marshal Tech Kit Organiser

We already know enough stories of tangled chords and

headphones in the bags. This sorts it all.

<https://dgit.in/OrgMarshall>

Price: ₹1999



Turf Felt Mini Desk Mat

Provide the bland workspace a touch of colour along with

utility with this desk pad.

<https://dgit.in/TurfOnDesk>

Price: ₹999



Logitech MX Master 3S

We had this at the Digit Test Centre, and can assure you that

for productivity, it does not get any better.

<https://dgit.in/MXStudent>

Price: ₹9,449



Infinote Classic Reusable Stone Paper Smart Notebook

This notebook is the perfect companion who is always searching for that sweet pen and paper feel but does not want stockpiles of used notebooks around the space.

<https://dgit.in/StoneBook>

Price: ₹999



Black Resin Head Bookend

Add a bit of art to the workspace, with these bookends that help keep those boring work journals upright and ready to go!

<https://dgit.in/BookDeco>

Price: ₹5,899



THIS IS
TECHNOLOGY,
CULTURE AND
SCIENCE WITH A
DIFFERENCE, AND
THAT DIFFERENCE
IS USUALLY ENOUGH
TO MAKE MOST
NORMAL PEOPLE
GO "WTF?"

This month in ALT:

We give our two cents on the Garmin Instinct 2 Solar and Creative Stage 360 Soundbar and look at some of the most drool-worthy tech money can buy. We also sat down with the top brass of Harman and Realme India, getting insight into their brands' future plans in India.



CEO details LastPass security breach

The CEO of popular encrypted password manager LastPass has said that the hacking episode last month did not involve any access to customers' data or encrypted password vaults.
<https://dgit.in/LPCEO>

WHAT'S NEW

IIT Madras opens India's quantum research doors

One of the most exciting topics of discussion of late in the world of tech has been of quantum computing. Adding to that was the recent announcement made by IIT Madras that the premier engineering and research institute of India is joining hands with IBM to gain access to their quantum computing tech and take research and development to the next level.

This announcement was made during a virtual press conference where the top brass of both institutions got together to make this announcement, much to everyone's excitement. The collaboration between IBM and IIT Madras



is aimed at "accelerating the research, adoption, skilling and application of quantum computing to address business and societal challenges in India." <https://dgit.in/IITM>

Google slashes R&D projects

Alphabet and Google CEO Sundar Pichai aims to make the company 20 per cent more efficient hinting at job cuts, as the tech giant cancelled the projects at its in-house research and development (R&D) division called Area 120.

Addressing the gathering at the Code Conference in the US, Pichai said that the more the company tries to understand



the macroeconomic conditions, it feels very uncertain about it. "The macroeconomic performance is correlated to ad spend, consumer spend

and so on," he told the audience. TechCrunch reported that the company is slashing projects at its in-house R&D division, Area 120, which has nearly 100 employees. Affected team members "will receive dedicated support as they explore new projects and opportunities at Google", the spokesperson added.

<https://dgit.in/googlernd>



Chinese mobile companies reportedly moving away

Amid India's escalating crackdown on Chinese companies, China-based smartphone brands are now planning to set up manufacturing plants in countries like Egypt, Indonesia, Bangladesh, and Nigeria.
<https://dgit.in/goingaway>



Tesla installs record 4K EV superchargers

Tesla, has installed nearly 4,000 supercharger stations globally, growing 34 per cent year-on-year. During the first three months of 2022, the Tesla stations stood at 3,724, representing a growth of 7.13 per cent from the previous quarter.
<https://dgit.in/TeslaFTW>



Elon Musk sends another notice

In the latest letter submitted with the US Securities and Exchange Commission, Musk's legal team cited Twitter's multi-million dollar severance payment to former security chief and whistleblower Peiter "Mudge" Zatko.
<https://dgit.in/MuskTwitter>

Madhav Sheth shares Realme's targets for festive season sales, plans for 'second phase of growth'

"For the coming months, we have some exciting plans in place..."

Sushant Talwar | sushant@digit.in

Realme's journey in India has been an interesting one. With a line-up of impressive products under its belt, the company is now looking to take the next step forward, as it enters what it calls the "second phase of growth". We recently sat down with Madhav Sheth, CEO, Realme India and President, Realme International Business Group, to understand the company's plans for the upcoming festive season sales, its detailed strategy to boost growth in India.

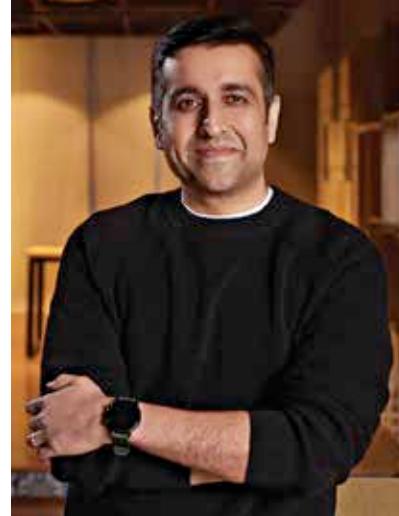
Q Realme has seen massive growth in the last four years. How has the journey been?

Madhav: Our journey in the last four years has been nothing short of exciting, and we have grown exponentially. We have enjoyed this ride of ups and downs and are now looking forward to what's coming next for us as a brand and as a larger industry. In a mere span of four years, we have been able to carve a niche for ourselves in the Indian market as well as globally. Realme has been one of the only brands that has seen positive growth over the past few months and we take immense pride in it. We were recently positioned as the second-largest smartphone brand in India as per IDC reports and we are working towards sustaining the position in the future as well. In the last two years, we have also expanded our portfolio

in terms of new product categories such as wearables, hearables, laptops, tablets, and other smart home products with our 1+5+T strategy. Our user base in India and in other countries has grown massively. We have over 140 million users, out of which 70 million are from India, and the number is increasing with each passing day. As a brand, we have also been working towards building a strong manufacturing ecosystem within the country and have partnered with various OEMs for our smartphones, smart TVs and other AIoT products. For the upcoming months, we have some exciting plans in place and have put together a detailed strategy to achieve our goals.

Q What will we see next from Realme?

Madhav: Now that we have built a strong foundation for ourselves - we have launched multiple products and entered quite a few categories, creating an expansive TechLife Ecosystem - we are entering our second phase of growth where we will be focusing our efforts on driving focused, long-term growth. For this, we have put together a three-pronged strategy which includes market cultivation, optimizing e-commerce, and simply better strategy. Let me take you through these in detail. India is a 10-million shipments market and holds a special place for us, being the market where we started out. In the last four years, we have built local teams and hired local citizens to leverage their understanding and skills for the Indian market. We want to ensure that our products are always in line with what our users are looking for, and we believe that this understanding lies best with the citizens of the country itself.



Madhav Sheth, CEO, Realme India and President, Realme International Business Group

We want to bring more local and customized experiences to our users and we will do everything possible to make that happen through our market cultivation strategy. Talking about our enhanced e-commerce strategy, we intend to strengthen our partnership with Flipkart and Amazon. We are also working towards establishing our International E-commerce Department (IEC) globally to strengthen our e-commerce DNA and unify channel management. Moving forward, Realme also aims to simplify its product offerings, beginning with the GT Series and Number Series phones, giving additional importance to the quality of the product. While our GT Series will continue reaching for the future of tech and design, our Number Series will focus on making today's tech innovations more accessible. At Realme, we have always ensured that we provide the best of everything to our customers, and moving forward, we want to continue to strengthen our commitment to deliver the best for our customers and leave no room for complaints or challenges.

Q What does your product line-up for the upcoming months?

Madhav: Like I mentioned earlier, in our second stage of growth, we are focusing on expanding our current portfolio while emphasizing bringing superior quality products. Moving forward, we will add more products to our current categories and enter some new categories as well, keeping in line with our Simply Better strategy. **d**

Vikram Kher and Yogesh Nambiar share what Harman's road ahead looks like

"... we are focused on consumers' experience & satisfaction"

Satvik Pandey | satvik@digit.in

JBL has been one the most popular brands in the Indian audio markets for years. Known for its signature 'Pure Bass' sound, the brand has launched several products in the Indian market over the years and enjoyed its share of success.

However, despite all that, some questions remain in the mind of the consumers about the brand's strategy going forward and in the current market scenario too. Questions like JBL's strategy to stand against competing Indian brands and what is the reasoning behind a product getting a Dolby certification? To get answers to all these questions and more, we sat down with Mr Vikram Kher, Vice President, Lifestyle at Harman India and Yogesh Nambiar, Head of Marketing at Harman India. Here are the excerpts from that conversation.

Q How does Harman plan to compete against home-grown brands like boAt, Noise, Boult, and FireBoltt?

Vikram: Okay. So let me answer it in this way. Harman welcomes the competition. I firmly believe, rather we firmly believe that competition is always good. Not only for consumers but also for market leaders like Harman or different industries having different brands. So without taking the names of any brand, I believe that we can stand our ground. Our focus is primarily

on what consumers want. And with our 75 years of expertise in research and development to create what we call JBL Signature Sound in marketing language.

For that, consumers are willing to move from Flip 4 to Flip 5, to Flip 6, to whatever in future will be coming, we will be offering the best quality product, which is good for the consumers. And that is one short way, which is to summarize understanding customers' needs and providing the right quality, which is required, which will add value to his environment or his life. That is the only way any brand can compete with the competition. So without worrying about competition, we are focused on consumers' experience and customer satisfaction.

Q We recently reviewed a pair of JBL earphones, and its "Pure Bass" sound signature affected the listening experience in terms of clarity of vocals. Any comments?

Vikram: So the bass is one subject where sometimes the consumer is not fully aware on what are the pros and cons. If you ask a layman consumer, they feel that bass is the best sound for us, which is not right. So, what we are doing in our recent launches is app support. If you use JBL's app, you can have the flexibility to tweak the bass as per your own taste. And this taste will keep on changing probably, in India, our experiences, everybody wants high bass. Right? Which is not good for your ears. So we want to give

that flexibility to the consumer so that they can tweak the bass based on their taste and requirements.

Q JBL is a subsidiary of Harman. But, we do not see Harman's balanced sound signature in JBL products. Why?

Yogesh: So I'll take that question. So Harman has its signature code, and so does JBL. Okay. Harman addresses a certain

customer segment, and JBL addresses a separate audience profile of consumers. JBL has a separate following, okay? People who are listening to JBL it need to have a JBL Signature Sound. And when you're listening to Harman, it needs to have a Harman sound that comes attached to it. So, which is where they both don't go together. Our engineers are separate for Harman Kardon versus JBL. They both sit separately. Designs are separate. That is because the consumer profile is totally different. When Sidney Harman and Bernard Kardon designed Harman Kardon, they weren't thinking about what James Bullough Lansing was designing on JBL, right? So when we got JBL under our wing, we obviously didn't want to tinker with what James planned for. They both have their separate signatures, and we've kept that legacy.

Vikram: And believe me, there is a huge fan following for the JBL Signature Sound as well. In fact, Yogi (Yogesh), when he designs his marketing collaterals and the campaigns, we make it a point to talk about JBL's Signature Sound. Our consumer segments are different. The consumer profiles that we target are different for Harman and JBL. **Q**



Vikram Kher,
Vice President, Lifestyle
at Harman India



Yogesh Nambiar,
Head of Marketing
at Harman India

Keychron K8 Pro

A keyboard is something everyone uses on a daily basis if you do anything even remotely related to computers, and if you've never heard of mechanical keyboards, boy oh boy you are in for a ride.

Mechanical keyboards have been around for the longest of times. People still buy them because there is a very particular typing experience that they desire which is only achievable through these overpriced yet amazingly satisfying pieces of technology.



the kinds of switches you wish to use in your board and whether or not you want it pre-assembled. Yes, you can make your own keyboard, reference our June 2022 issue to learn how!

The K8 Pro in particular is a Ten Key Less keyboard meaning it doesn't have a number pad so it won't take as much space on your desk as a regular sized board giving you more mouse space to work with.

The K8 Pro will set you back about ₹10,499 if you were to buy it now otherwise of course, there are sales that you can look forward to or sign up for their email newsletter to get a 10% discount code and just unsubscribe later if you don't want to hear from them.

The Keychron K8 Pro is one of the keyboards that you can start your mechanical keyboard journey with. Keychron provides you with multiple different options in terms of



Peloton Bike+

A fitness freak's perfect dream, a bicycle that allows you to do all the work without leaving the comfort of your home and doesn't leave you reliant on your imagination for the places that you'd want to bike to.

The Peloton Bike+ allows you to have a proper biking simulation experience. It has a large screen that immerses you into the biking experience basically making it a racing simulator only this isn't a car racing simulator and you're actually racing in the Tour de France while an instructor guides you through the course.

The Peloton Bike+ isn't a one time investment and there is a \$39 monthly subscription fee to Peloton's own classes that you would have to pay for if you want to make full use of the Bike+. The classes are however fully synced up with the Bike and will change the resistance of the pedals automatically as recommended by the trainer who is taking your class. Of course you can turn that setting off in case you don't feel up to the challenge but it serves as a good addition to the bike.

The monitor on the bike is also rotatable which makes it easier for you to transition to non-cycling related workouts in the same space that you would be cycling. The bike will set you back \$2,495 with the \$39 subscription fee added separately.

Caviar "Parade of the Planets" iPhone 13 Pro Max

Caviar is a company that makes custom tech products for the extremely rich and what other thing to scream you're rich than a titanium body gold-plated iPhone with actual pieces of meteorite! The iPhone 13 Pro Max "Parade of the Planets" edition will set you back about \$17,390

If you choose to go for the 128 GB variant but let's be honest, if you're spending 17 grand on a phone, you might as well go for the 1TB variant which will only set you back \$18,590. Apart from the obvious specifications of the iPhone 13 Pro Max, you will also get gold plating on the back of the phone along with intricate



carvings of space and astrology. Apart from that, the phone's back also has an actual functioning Analog clock on the back accompanied by an hourglass with silvery sand in it. Coming down to the meteorites, it's got pieces of the Moon and Mars, and Tsarev and Chelyabinsk meteorites embedded in stylistic images of the planets on the back bringing a total of six pieces of very expensive rocks in the mix.

There is also an engraving of a quote by Albert Einstein around the orbit of the Earth which says "A human being is a part of the whole, called by us "Universe", a part limited in time and space."

Dell Pro 2K Webcam

How often have you been annoyed at people telling you your webcam isn't good enough? We sense its quite a few times and so, here's a solution you can use to silence the haters once and for all so that they don't dare point out your inferior webcam.

The Dell Pro 2K webcam is of course overkill for a webcam. But hey, if you've got the cash, why not use it on a better webcam right? Unlike most webcams which support only upto 1080p, this webcam from Dell will support upto 1440p QHD making your video the



reason that the meet lags for other people as you laugh at their slow internet connections.

The webcam also proudly boasts of a Advanced Image Signal Processing which helps in delivering true to colour images to your computer even in extreme lighting conditions along with also reducing motion blur and grainy images in low light. The webcam is also certified by Microsoft Teams and Zoom. So you can rest assured that the camera is going to be completely compatible with those pieces of software.

Coming down to how big of a hole this webcam might burn in your pants. Well, considering this is a 1440p QHD webcam from one of the big corporations, this webcam is going to set you back by ~₹15,500. From the product page, it looks worth the price that you pay for a somewhat 'novelty' product like this.

Quantum Massage Gaming Chair

We're sure you have a chair, heck you might even have a comfortable chair, might even be a gaming chair with lumbar support for all we know, the best of the best, but does it massage you? We thought not.

The Quantum Massage Gaming chair is one such chair which offers you all the things mentioned above and more in the form of a back massage right after or if you're daring enough, during your gaming sessions which we know can get quite long.

The Quantum Gaming chair supports all the essential areas that your body might be at risk for getting cramped - your shoulders, neck and of course, your back. Not only does the chair support it all, however, it also allows you to turn on its massager and massage your back and shoulders which gives it an edge over its competitors. Apart from the massaging functions, the chair also has all sorts of bells and whistles which make it a formidable product. From 180 degree ergonomics on the back, to a 3D adjustable armrest, this chair has got all that you could ask for in a gaming chair and more at a price tag of only ₹17,900.



GoPro Hero 10 Black

We've all been there, looking at skating videos, or someone parachuting, skydiving, or going scuba and thinking, "Hey, that looks fun! I wish I could record like that!" Well, the one name that might pop up into your head after such a thought is of course, the signature name that is famous for making waterproof cameras and gear, GoPro!

The small form factor cameras produced by the company are perfect for something of a more rugged use case and if you want nothing but the best as your adventure cam, then GoPro should be your go-to choice.

The Hero 10 Black is the latest in the lineup of the GoPro family and boasts of the best specs yet in a GoPro with support of upto 5K video alongside a 23 MP photo sensor.

In terms of storage, you will need to insert your own microSD card into the camera which allows you to have more freedom over how much storage you actually have for the camera. The camera also supports livestreaming upto 1080p which makes it a perfect option if you want to go ahead and live-stream your adventures someplace like YouTube or Twitch!

The Hero 10 Black costs about ₹45,000 at the time of writing but you can always get it for cheaper during a sale or once the Hero 11 Black comes out which has already been announced.



Creative Stage 360

Packs a small punch

Creative has, over the years, slowly established its presence in the Indian consumer audio market, and with their Creative Stage 360 2.1 soundbars, they attempt to make a fresh dent in the soundbar space. The Creative Stage 360, at the time of launch, had a lot of talks going around about it, so when it showed up here at the Digit Test Centre, we took it for a spin, playing our favourite soundtracks and hooking it up to the TV and PlayStation watching movies and playing games, all while keeping a keen eye on the sound that this soundbar produced. Here's what we'd like to share.

The Creative Stage 360 carries forward the design language of the Creative Stage family of soundbars. It has a clean-looking black exterior, with subtle Creative branding both on the bar and the subwoofer. The soundbar itself sports a metallic grill at the front, shielding its 2 x 2.25" x 3.85" Racetrack Driver that is enclosed in a plastic enclosure. The front of the soundbar has a dot matrix display, which gives out information about the active connectivity option, and whether the bar is on or not. There are four basic buttons baked into the soundbar, with functionalities like play/pause, changing connectivity options, and switching the bar on or off.

Coming to the subwoofer, the first thing that caught our eye was the amount of output it generated for its size. We will come back to it later, but it was important to mention its performance, given its 115 x 250 x 422 mm housing, which holds the mesh-covered 5.25" High Excursion Driver. It connects to the main soundbar using a 1.5m cable, which terminates into a barrel plug that goes into the main soundbar. The feet at the bottom of the subwoofer help it stay pegged in place even when playing bass-heavy tracks.

The soundbar also comes with a remote, which provides the users with ample control and versatility. The buttons on the remote are clicky and give

adequate feedback when pressed. The general build quality of the remote is nothing to write home about. However, considering the price of the soundbar, it was acceptable.

As far as the connectivity is concerned, this soundbar comes packed with all the bells and whistles. There are two HDMI ports on the back of the soundbar, with support for ARC. Alongside the HDMI ports, there is also an optical audio port. For wireless connectivity, there's Bluetooth. So, it practically has all the bases covered. However... We may sound



archaic when saying this, but we missed our old friend, the AUX port. The absence of the jack was especially felt by one of our team members who tried hooking it up to his Bluetooth-less PC and was disappointed.

During our gaming sessions, which involved all sorts of titles like F1 2022, where the biggest challenge was reproducing a variety of engine sounds at varying distances, to games like Fortnite, the overall experience was enjoyable. However, it is just for casual gaming. If you are looking to play anywhere close to a competitive game where positional awareness matters, then this soundbar will not be enough. Even in F1, sometimes we were left searching for the cars that were around us.

When it came to movies and music, the performance saw a relative boost. When listening to songs, the positioning of the instruments is important, and when it came to this soundbar, the imaging was sub-par. While all the instruments in the song stood their ground, their positioning always remained something that we were disappointed by. It was not like there was an absolute lack of

any separation that came out of the bar. It was the amount of separation and the positional awareness that bummed us out.

The same was the case with movies. Despite being Dolby Atmos certified, this sound bar, given its price tag of ₹16,999, failed to meet the expectations. It might sound like we are being really cynical, but we expected better performance for the price, especially when it is carrying the Dolby badge.

As for the sound signature, we found the audio to be bass heavy out of the box. The remote allows for changing the bass levels in the audio that is being produced by the soundbar, which makes a world of difference. After tuning the bass, the soundbar's performance was elevated to another level. The sound was well balanced overall, and during our binging sessions, we could easily make out even the softest of dialogues being spoken by the characters on the screen. While the staging, in general, remained a sore spot, the overall frequency reproduction was something that would suit its use in entertainment and casual gaming setups.

If you are out in the market for an easy to setup soundbar for your home entertainment system, the Creative Stage 360 can be a decent buy. There are better options out there, especially when considering the generally discounted price of some excellent offerings from LG and Samsung. If you are willing to wait, then it would be worth it. However, if you are looking for a soundbar that you could buy right away with your eyes shut, then Creative Stage 360 should be in the top 3 of your list of considerations. It performs well for the most part. The only place it lacks, for the price you are paying, is the staging of the sound and the resultant spatial awareness. With that aside, this makes for a decent purchase.

-Satvik Pandey

Garmin Instinct 2 Solar

The Garmin Instinct 2 Solar, one of the latest entrants into the Instinct series of smartwatches by Garmin. Garmin, with this watch made a bunch of promises about its capabilities that make it a powerful adventure companion. Instinct 2 Solar's biggest selling point is its solar charging capabilities. When worn by the user in the Sun, the watch charges itself. However, if you are anyone but an adventurer who is out in the open every single day, then you will have to juice it up using the included charger. You won't have to look at the battery levels frequently, though, as the watch during our usage easily lasted for about 20 days, with all the bells and whistles active all the time. Talking about the features of the watch, it features a host of different ways in which you can use the capabilities of all that is packed into this 400 gm package. They boast about the watch being tested to the US

Military Standard 810, meaning it can be operated at high altitudes and be subjected to environments where most of us would break down. Of course, we were not able to push the watch to that extent otherwise, who'd write this? But when we put the watch through its paces, it withstood all of it. When it came to reporting weather, feeding off the capabili-

ties of the phone, it also managed to hold its ground. We also wore the watch on our fairly limited outings to the gym, and we came nowhere close to exhausting the list of activities that are baked into the watch. It also showed our maximum oxygen absorption levels, which impressed many. During our office hours, it was the notifications that mattered the most. And the Instinct 2 Solar did not disappoint! However, due to its screen limitations, it wasn't able to display as much information as a normal smartwatch would. We often had small portions of our notification texts cut out. But, that should not be of much concern to this watch's target audience, as we could not replicate this problem in any other place apart from the notifications feed.

For the price, this watch makes for a great overall package for anyone looking to buy a watch that will last them through a zombie apocalypse. On a serious note, it is a great offering, and for the price that you pay, ₹50,490, you get whatever you'd expect. If you are looking for a watch that would replace your existing smartwatches like the ones from Apple or Samsung, you should stay away from this.

—Satvik Pandey



Noise ColorFit Pro 4

Noise launched its ColorFit Pro 4 and ColorFit Pro 4 Max wristwatches in India this year. We had with us the former and upon wearing it day in and day out for a while now here's our experience of using it. One of the exciting aspects of Noise ColorFit Pro 4 is its design and to some extent its build quality. From a distance, people could mistake it for an Apple Watch. Its squircle dial and digital crown may appear inspired by Apple's design manual. But, when you come closer, you'll notice the central placement of its crown, the differences in its strap design, and the Noise branding, of course. The detachable strap feels nice to touch, but it can get a bit itchy and leave marks after a long course of use. Overall, we liked the Noise ColorFit 4 Pro design even with its expected quirks. It has a 1.72-inch TFT screen with 356x400 resolution. When it comes to navigating through the UI, you will realize this isn't the smoothest screen experience. To decorate the screen, there are 150+ watch faces. So, it has passable visuals and a rather straightforward user interface. Once it's paired, you can use it to track up to 100 sports modes. The list only lacks swimming. Further, you can also keep tabs on other health parameters like blood oxygen, sleep, and stress. As for monitoring oxygen levels in the blood, the built-in SpO2 tracker was comparable to an actual pulse oximeter. The lattermost is especially interesting as ColorFit Pro 4 comes with Bluetooth calling. In theory, it lets you receive and make calls using the in-built speaker and mic setup. At ₹3,499, Noise ColorFit Pro 4 is for everyday folks who are looking for their first smartwatch. If you're not hard-bent on the accuracy, you would also find the accompanying smart or smartphone-related features as an added bonus.

—G.S. Vasan

ANIMATED SITCOM

Rick and Morty Season 6

★★★★★ | Season 6 of one of the most satirically depressing franchises, Rick and Morty, starts off in a rather dystopian setting. With the Citadel gone, and the portal gun broken, Rick and Morty are stuck in what remained of the place that once every Rick called HQ. They are rescued by Space Beth who is either clone that Rick made, or his actual daughter who had wanted to see what she could have been. Either way, once rescued, they make their way back to their Earth where the Beth who stayed back is relieved.

As soon as Rick returns, he tries to reset the portal gun and in the process resets everyone who had ever portal travelled. In case you couldn't catch on,



Rick was in a dimension that wasn't his own and gets transported back to his original dimension where we get a little more backstory on what Rick is out to do and the things he had done to punish himself to not forget his purpose that he had decided for himself.

As the season progresses, and the portal gun is still not back, we get to see multiple new instances of how Rick makes things work and it makes the season a lot different as Rick's "easy way out" is taken away from him.

It has also focused on the more emotional developments which have been a theme for the past couple of seasons and it only gets better from here. At the time of writing, there are only four episodes that are out in the sixth season. Still, we can't wait to see what Justin Roiland and Dan Harmon have in store for us this time around but if there's one thing we can be sure of, it's that this season is going to be one of the best ones that have graced our eyes till date.

-Paarth Pareek

ANIMATED TV SERIES

Cars on the Road

★★★★★ | Everyone's favourite Tow Mater and Lightning McQueen are back on the screens, but this time not for just a couple of hours... They are back for an entire series on Disney+.

Before sitting and binging the entirety of what is available on Disney+, we had stumbled upon the trailer of this upcoming show, and loved it! Nostalgia flowed through our minds as some members of the team recalled their teenage experience of watching Cars - the film for the first time, while the younger lot, went even further back in their memory books to vaguely recall watching the film, the first time around.

Coming back to this show. There is one word that we'd have for this - perfection! (almost). As McQueen and



Mater embark on a road trip, leaving behind the familiar terrain and warmth of the famous Route 66 town, Radiator Springs, things get exciting. The two instantly find their mojo which we saw in the earlier films of the franchise. What makes it better is that each episode is a movie of its own, with a proper plot line that has the near perfect beginning, middle, and end each time around. Each episode has a mood of its own, with horror being touched in an episode that was clearly inspired by The Shining and the viewers getting a taste of wild-

life adventure in the one inspired by Jurassic Park. You need no knowledge of the franchise or have watched any of the older films to understand what is going on at any given point.

If we write a single line more than what we have, we will end up spilling the beans on what is there in the show. We haven't put any spoiler alert either. So, it's apt if we end the review here. The show is exciting and might not appeal to the more amateur audiences easily. But once the nostalgia gets going, there's no stopping it... Ka chow!

-Satvik Pandey

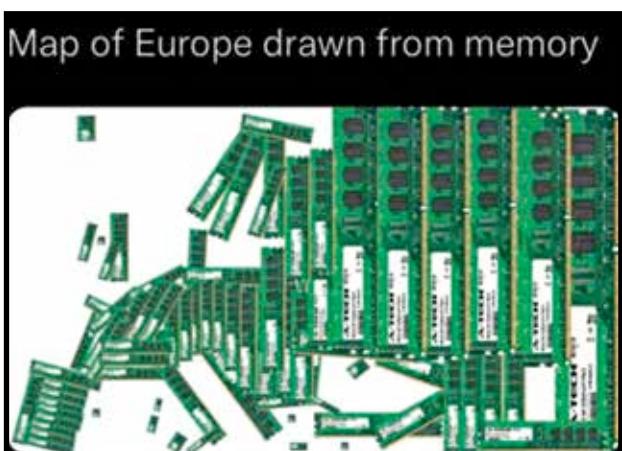
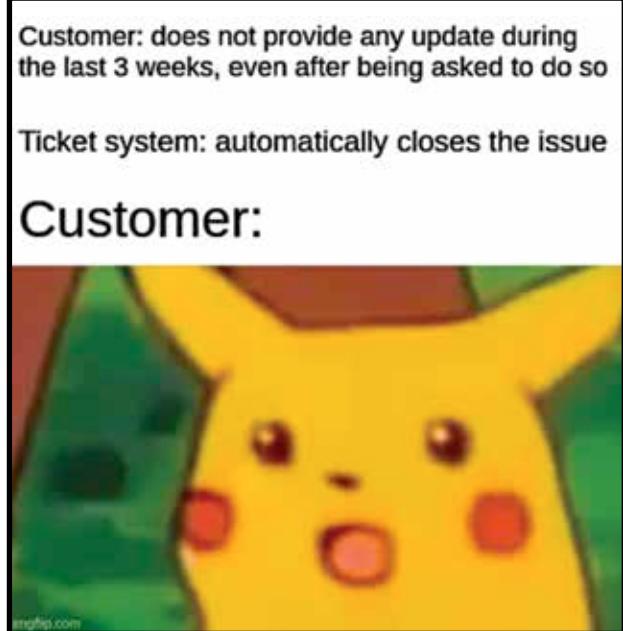
To follow the latest in tech,
follow us on...



facebook.com/digitgeek



digit.in/facebook



INSIDE

- REEVU | Saints Row
- PHEACHUR | Assassin's Creed Games that are too good to miss
- REEVU | Last of Us Part 1

SKOAR!

LIVE TO GAME



AA GAMES WHERE'D THEY GO?

A SMALL TRIP DOWN THE MEMORY LANE



PHEACHUR | PS 2 games that gave us nightmares

MOBA Mass-ified?

There's been a resurgence of sorts in the Mumbai Digit Test Labs. We've all picked Pokemon Unite up again. It may also have to do with the two newbies who've joined the team, but we all agreed that Pokemon Unite is a great starting point for anyone interested in getting into the MOBA genre. Heck, it's not just MOBAs, but even the usual RPG tropes are all simplified versions of mechanics that exist in full-fledged MOBAs and MMORPGs. If you've been following this space of late, then you know that we've had a change of heart when it comes to mobile games. Most mobile games today are a good starting point for future mainstream gamers (Not Diablo Immortal though, that game can jump into a well). Then again, considering the number of mobile gamers out there, us "mainstream" gamers are the minority today. Nevertheless, my point still stands. A lot of people who enjoy playing on mobile will more likely than not get curious about what it might be like to game on a PC or console. Maybe the casual gaming lifestyle is not for them, and they need some more challenge in their games. That being said, I personally think games like Pokemon Unite have found a pretty decent balance when it comes to being both casual and challenging. A lot of the complications that usually come with MOBAs have been completely eliminated. No items to buy or complicated recipes to remember. Just 3 moves to handle as opposed to 4, and they're pretty straightforward. After a few quick games you should have a pretty good grasp of how to play. On the other hand, there's something for the challenge seekers as well. Team synergy, creating 5-man compositions, finding the right balance between your moves, etc. As you climb higher in the ranked ladder you will find that you need to pay attention to a lot more things. Those might seem a bit daunting. But if you've stuck around with the game to get to that point, that means you probably had a vested interest in the game and will have practised or looked up how to get better on your own. It is this aspect of Unite and similar games which entices people to give a try to even more challenging games. A stepping stone to mainstream gaming.*



—Manish “Trigger-Happy” Rajesh
SKOAR! Overlord | feedback@skoar.in

“Most mobile games today are a good starting point for future mainstream gamers.”

Malware found in 28 games



Popular games like Roblox, FIFA, PUBG and Minecraft are among 28 games that were exploited by malware between July 2021 and June this year, affecting more than 384,000 users via nearly 92,000 malicious files.

<https://dgit.in/Malware28>

EA brings anti-cheat for PC



With an aim to protect Electronic Arts games from tampering and cheaters, Electronic Arts (EA) has announced that it is launching EA AntiCheat (EAAC) for PC games this fall.

<https://dgit.in/EAAnti>

Sony adds 1440p support to PS5



Tech giant Sony PlayStation5's latest firmware update has added features like 1440p support, Gamelists and more. These additions come to the delight of fans of the console across the globe!

<https://dgit.in/1440PS5>

Rockstar Games confirms GTA 6 leaked footage

Rockstar Games have confirmed that it 'suffered a network intrusion' that resulted in the massive leak of 90 videos of GTA VI, showcasing its engine, gameplay and more from an early development build. "We recently suffered a network intrusion in which an unauthorised third party illegally accessed and downloaded confidential information from our systems, including early development footage for the next Grand Theft Auto," Rockstar Games said in a statement.

<https://dgit.in/GTA6>



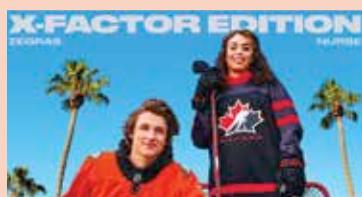
Fortnite Season 4 brings chrome-powered abilities

Fortnite's season four of chapter three will bring in new content, including chrome-powered abilities and Gwen from 'Into the Spider-Verse'. Users can throw Chrome vials on walls to pass through them and at their feet to turn themselves into a blob that is faster and immune to fire and fall damage. As a Chrome blob, users also gain the ability to air dash, allowing them to close distance on enemies quickly. Users will find a new point of interest called the Herald's Sanctum by the abandoned Sanctuary.

<https://dgit.in/FNS4>



UP AND COMING



NHL 2023

Fan of sports games? Well then, the latest addition to the NHL franchise from EA is something that would already be on your wishlist. If it isn't, then... You know what to do.

Release date: October 14



Sunday Gold

The upcoming title from the house of BKOM Studios, Sunday Gold is an adventure game that promises to be the perfect companion to you during those long boring Sunday afternoons.

Release date: October 13



Shattered Heaven

A perfect combination of a deck builder card game and RPG, Shattered Heaven is the game to go and purchase if you are looking for a game whose storyline is set in a dark fantasy world.

Release date: October 13

The Nintendo Gameboy was the first video game console played in space.

ASSASSIN'S CREED GAMES THAT ARE TOO GOOD TO MISS

By D "Ninja Duck" S | feedback@skoar.in

Assassin's Creed's latest offering, Mirage, was recently announced and it sent all the AC fans into a frenzy. While some were excited about the graphics, others were curious about the storyline and the characters. Apart from all this, there was one feeling that all fans had in common, the one of nostalgia. Since their inception, Assassin's Creed games have been all about stealth. The feeling of moving stealthily and taking your enemy by surprise was the IT element of games like Assassin's Creed: Brotherhood, Revelations, Black Flag and so on. One wrong move, one wrong step, and you're spotted by the army of enemy and will most probably die. But with Origins, Odyssey, and the latest, Valhalla, the AC games became more about combat than stealth.

However, with Assassin's Creed Mirage, it is expected that the makers are returning home and bringing us something similar to our all-time favourite character- Ezio. Before Ubisoft releases its newest offering, let's take a walk down the memory lane and have a look at the Assassin's Creed games that are simply, too good to miss.

1. Assassin's Creed II

The era of Ezio began here and we all witnessed an epic story full of intrigue, emotion, and adventure. When Ezio's father and brothers are falsely implicated for treason and executed, he becomes a wanted man. He then hunts down his father's Assassin's gear, kills one of the persons responsible for the execution of his family members, and flees to his ancestral home in Monteriggioni along with his mother and sister. There,

Ezio's uncle trains him to be as Assassin and tells him all about how their family is a part of the 'Brotherhood'. Along with the plot that feels like it is straight out of a blockbuster Bollywood film, it's the gameplay that also shines. From parkour to combat, things changed in Assassin's Creed II and were far more satisfying than its predecessor. One of the best moments from the game has to be the one where Ezio escapes his hometown with a whole army chasing after him. Yet another moment would be when he takes his revenge and kills Uberto, after trailing him like a ghost, hiding in various groups until he gets the perfect chance. Killing Uberto however, was only the beginning in the game and for the next few years, Ezio is shown to be hunting those responsible for his family members' death and killing them.

2. Brotherhood

Exactly a year after the release of AC II came its successor, Brotherhood. The game was



launched for PlayStation 2 in 2010 and turned out to be yet another blockbuster in the Assassins Creed Franchise. Brotherhood was the much-awaited sequel of Assassins Creed II and continued along Ezio's story. Ezio is truly one of the most remarkable characters in the Assassins Creed universe and we've all grown up playing his stories. With a heavier focus on combat, Assassins Creed Brotherhood allowed us to explore Rome with a little more detail along with enabling us to recruit people in the Brotherhood. This could be done by locating Borgia towers on the map and destroying them. Each destroyed



tower gave us the option of rescuing a local citizen and recruiting him. Brotherhood was also the first game in the franchise to introduce Multiplayer and allowed us to battle it out with our friends, a feeling that was relatively new in the PlayStation 3 era.

3. Black Flag

Nothing could beat the feeling of playing as a pirate as well as an assassin in this masterpiece which is why the game finds a well-earned spot on this coveted list. Black Flag took us to West Indies, in the early 18th century when Pirates sailed the seas with full gusto. We got to take control of Edward Kenway. And if the name sounds familiar that's because it is. Edward is actually the father of Haytham Kenway from Assassins Creed II. Majority of the game is focused on finding lost treasures along with a mysterious place that the Templars and Assassins are on the lookout for. One thing about Assassins Creed Black Flag is its naval combat. From dropping bombs on rival ships to bracing at times of impact, the naval combat is a whole new area in the game where some of us took pride in shining, while the others found it a bit too daunting. The game was also a hit for the scenic

views while travelling by sea, improved graphics and intriguing side quests.

4. Syndicate

Welcome to London in the Victorian era, which is at the brink of the Industrial revolution and has many surprises along the way. Assassins Creed Syndicate was launched in 2015 for PlayStation 4 and introduced us to Jacob and Evie Frye, twin brother-sister duo who have separate objectives but are on the same team. While Evie wants to hunt for an artefact called the Piece of Eden before it falls in the wrong hands, Jacob seeks to free the city from the control of the Templars. The two form their own gang, the Rooks, and make several allies on the way. We, as players, could switch between Jacob and Evie at any point in the game (except for when a mission is already running). The most exciting moment in the game was towards the climax, when the twins infiltrate Buckingham Palace during a ball to fulfil their agendas.

Apart from this, the game also enabled us to ride carriages, explore Vicori-



an-era London, complete side quests and customise costumes of the Fryes. Another interesting aspect of the game was the various historical characters who often made an appearance. From Alexander Graham Bell to Charles Dickens, we meet them all and even run an errand or two for them. If you're somebody with a keen interest in English Literature and Victorian era London, you simply can't miss out on this gem.

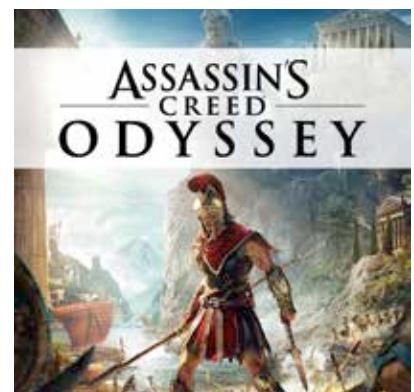
5. Origins

Origins was a shift from the usual Assassins Creed games and focused on an entirely different story from ancient times, before the Brotherhood was even formed. The game was a huge success when it launched for the PlayStation 4 in 2017 as it took us to Ancient

Egypt and gave the players a sense of exploration right from the first few minutes. The stunning graphics, captivating storyline, mythical elements and well-written characters backed the game and made it a popular choice. We played as Bayek of Siwa and the very first cutscene shows him fighting a powerful foe. Before Origins, AC games were all about stealth but in this instalment, it is established early on that Bayek is a powerful character and will fight with no mercy. Bayek, along with fighting for the people of Egypt, also hunts down the Order of the Ancients' members in the game, who are predecessors of the Templars.

6. Odyssey

Yet another masterpiece that involved some epic moments and an epic storyline. Assassins Creed Odyssey was a game that was high on emotions. Be it a daughter having to choose to kill her father or spare his life, or a sister trying her best to bring her brother to the correct path, there were various 'wow' moments in this game. The events of Odyssey take place between 431 BC and 422 BC, during the Peloponnesian War between Sparta and Athens. As mercenaries, we fight for both sides during the game's story and towards the climax, Kassandra's true identity is revealed which is nothing short of a mystical miracle. The rich storyline, spectacular visuals, memorable characters, intriguing battle combat and an overall impressive gameplay made this game a winner when it launched for the PS 4 in 2018. Which one is your favourite Assassins Creed title? Do let us know. Keep reading! *



THE LAST OF US PART I



A really good upgrade but not worth the asking price

By Andrew 'Edgecrusher' Lu | feedback@skoar.in

The world was not ready for a game like The Last of Us when it was first released on the PS3 back in 2013. A story-driven experience, TLOU set itself apart from the glut of games with intelligent and pensive gameplay coupled with a beating heart that pushed the narrative forward. The game told the story of Joel Miller, a hard-nosed survivor in a post-apocalyptic world. The world has been run over by fungal spores that infect humans, turning them into mindless zombies. It's in this world that we follow Joel and his journey toward redemption in the form of Ellie Williams. A girl that is immune to the fungal spores.

The game has been praised by critics and fans alike, with a remaster for the PS4 and a divisive and bland sequel following its success. But, for a first-timer, is it worth the asking price on the PlayStation 5? The answer is

simple, have you played the game before? Then no. Do not spend your money on just a visual upgrade. On the other hand, if you have not experienced The Last of Us Part 1, then we suggest you fork over the cash because as far as the game is concerned, this is the best way to experience it.

VISUALS

Look, the game looks amazing on the PS5. There is no doubting that. The visuals are stunning and the upgrade is worth it on just that alone. The original game pushed the PS3 to the limit and even back then, the game looked really good but this new upgrade really pushes it towards a more modern AAA experience on the PS5. The character models all look spectacular and the various fungus zombies look incredibly creepy and disgusting. The animations have also been redone



with smoother and more realistic movement. There's a real weight to the characters and it helps draw you into the story.

The environmental design has also seen an upgrade with levels looking much better than before. The brick and concrete textures really pop out and are an immersive feature. The cutscenes have also been upgraded and give the more emotional scenes a real sense of gravitas.

STORY

We won't rehash the entire story here as the game is almost 10 years old now but rest assured that it's an emotional rollercoaster that grabs you right from the very beginning and refuses to let go up until the final scene. It's a testament that Naughty Dog has crafted such a poignant and human story and completely dropped



the ball with the atrocious sequel. All you need to know about the game is that Joel is tasked with helping Ellie reach a rebel group known as the fireflies and shenanigans take place. Just go into the game blind, you won't be disappointed. There's a real grounded and human tale here, with themes of fatherhood, loss and grief really taking centre stage in a world that has collapsed.

GAMEPLAY

The gameplay on The Last of Us Part 1 remains largely the same with a few tweaks here and there that add to the already immersive gunplay. Back in 2013, when the original game was released, fans and critics raved about the AI system and how enemies would react to your actions. Well, that feature seems to have been dialled up in Part 1 with better enemy AI and pathing. As modern games go, this is one of the better implementations of smart enemies we've seen in a while.

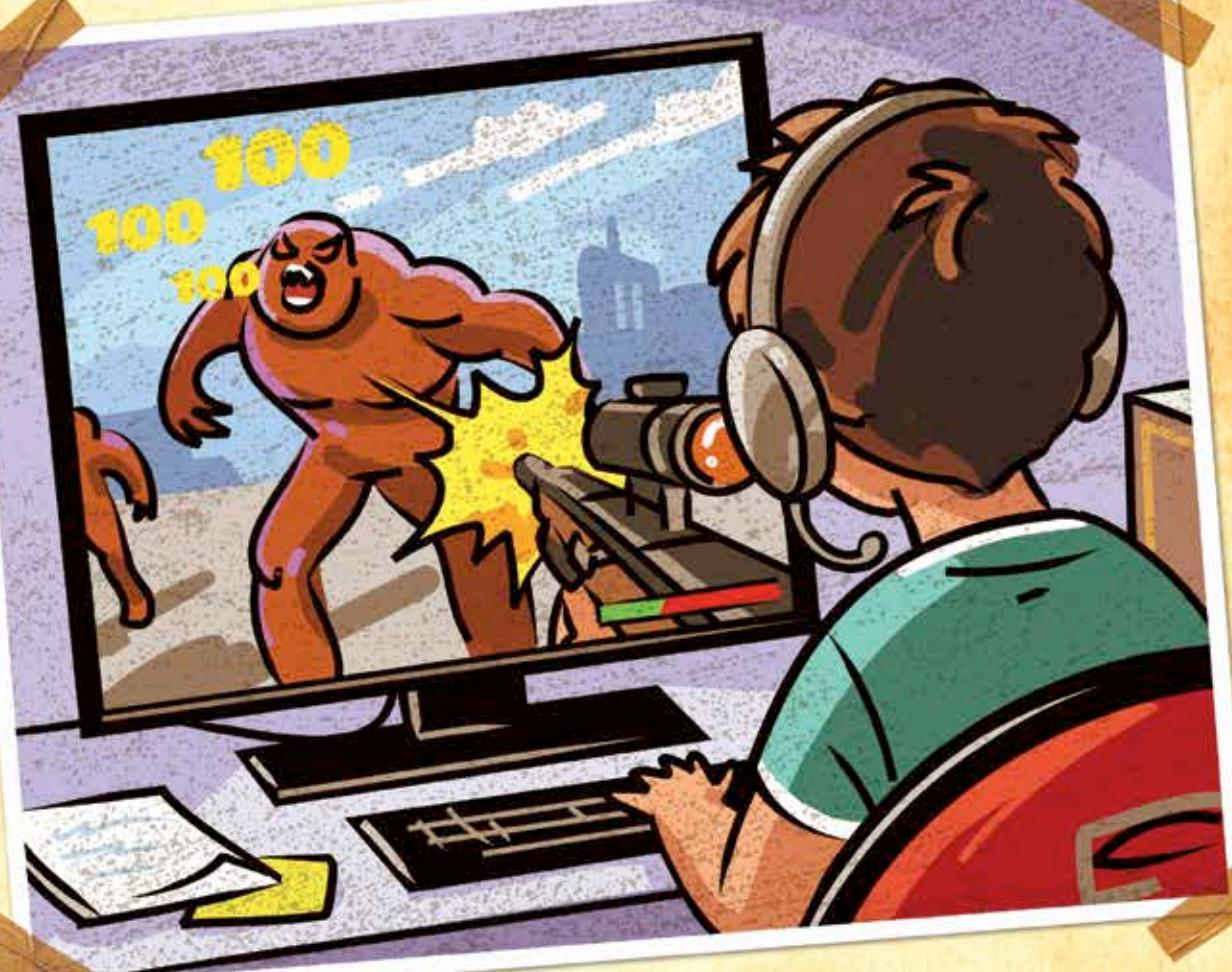
The controls have also been rehauled, giving the game a smoother feel. One of the few things that were good about the sequel was the controls and Naughty Dog has ported that system over to Part 1 and it works really well.

VERDICT

Look, if you own the PS4 version of the game then there really is no need to pay for this upgrade. There's nothing here for older players to return to and the fact that there is no multiplayer is also a downgrade. But, if you've only watched videos and never played the original or the Ps4 remaster, then please do go out and buy this game. There is no way you will be disappointed. It's a game that you have to add to your collection. Even if you're not a fan of story-driven, walky-talky games, do make an exception for The Last of Us Part 1 on the PS5. *

MOAR!

DEVELOPER
Naughty Dog
PUBLISHER
Sony Interactive Entertainment
PLATFORMS
PlayStation 5
PRICE
₹4,999



AA GAMES WHERE'D THEY GO?

A SMALL TRIP DOWN THE MEMORY LANE

In a world of big-budget blockbuster games, we take a trip down memory lane and focus our attention on the enigmatic world of Double-A games. We're charting a course from when the Double-A game started and what it looks like in the modern age of gaming.

By Andrew Lu | feedback@skoar.in



We're now in the 9th generation of gaming consoles and it's clear that games are not just child's play anymore. Gaming is big business and it's evident from the kind of games we get these days; Grandiose blockbusters like God of War, Resident Evil, Red Dead Redemption 2, and the list goes on. These games have sort of changed the paradigm of the medium. They're detailed and evocative pieces of art that, more often than not, have been hailed as transgressive and the future of entertainment. But, what about those games that were just that, fun-filled, campy, shlocky video games? They did not have the budget that modern AAA games have and therefore had to cut corners and generally be a bit more creative when it came to designing. Think of games like Fear Effect, Godhand, Steel Harbinger and even stalwarts like Okami. The easiest way to classify them would be to call them Double-A games.

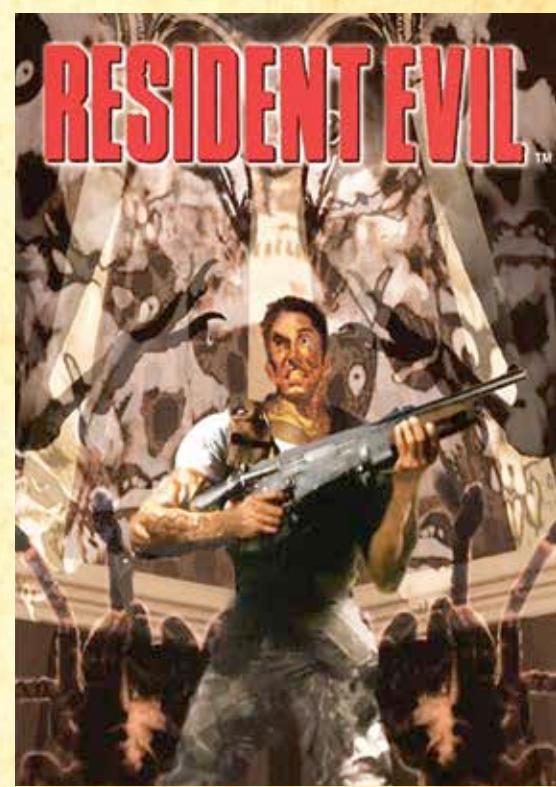
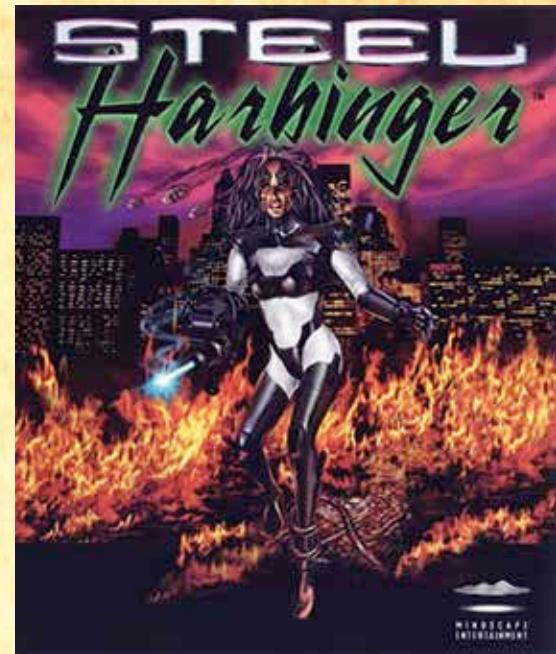
So, what exactly is a Double-A game? The easiest way to describe a Double-A game is to look at how much money was spent on it. AAA games have insane budgets for development, marketing and such but Double-A games generally had much smaller budgets and had to rely on either word of mouth or on positive reviews. A Double A game (AA) is a game that does not have the same level of quality as AAA games. They generally have a lower budget than AAA games. They try to achieve the same level of game design as AAA games but generally fall short in one or more areas such as Gameplay, Story, Graphics, Pacing, and underwhelming Set Pieces. These games are generally but not always clones of AAA franchises that just don't reach the potential set by their predecessor, some are practically multiplayer only, and some are just in an over-saturated genre. However, some of them are truly great games, just missing that special something.

If we're really getting deep into this, we could see that this trend really took shape during the PS1/PS2 era. That

generation of gaming was far ahead of its time and really took the gaming industry from a nice market to a worldwide phenomenon. The PlayStation One was the OG but the PS2 took what its older brother had created and industrialized it on a scale never seen before. A lot of franchises that are still beloved today got their start on the PS1. Games like Resident Evil, Metal Gear Solid and more helped establish the PS1 as the must-buy system of its generation. Beating out the likes of the Sega Saturn and even the Nintendo 64.

The PlayStation One was really where the idea of the Double-A game was born. With the success of Resident Evil on the console, developers began trying their hands at a bunch of titles similar to RE. We got the excellent Parasite Eve and Fear Effect as cheaper replacements. It was here the developers saw the viability of Double-A games as a financial win. If the game was successful, great. Not much was spent on it anyway and if the game failed, well, not much was spent on it anyway. This ended up being a viable strategy for some time to come and even carried over to the PS2.

The PS2 ended up being one the most successful consoles in history and one of the driving factors that helped contribute to that success were the games. Of course, you had your



heavy hitters in Metal Gear Solid 2 and God of War but there were a massive number of titles that scratched pretty much every itch a gamer could have. In fact, the PS2 boasts a library of more than 4000 games! At the time, the power of the console was unmatched and developers were looking at ways of

maximising every bit of the PS2.

Did you want a sweet God of War/ Devil May Cry clone? There were dozens on the PS2. Ghost Rider, Blood Will Tell, the first Onimusha etc. It also helped that Devil May Cry kind of started out as a Double-A game and then turned out to be the juggernaut it is today, but

that's a story for another day. Did you want a third-person action game?

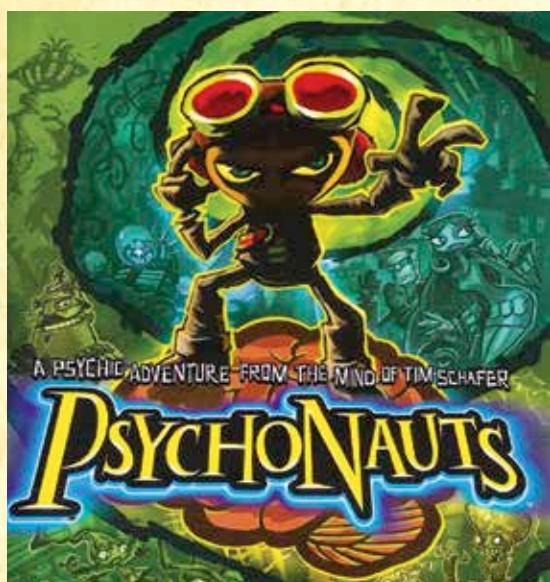
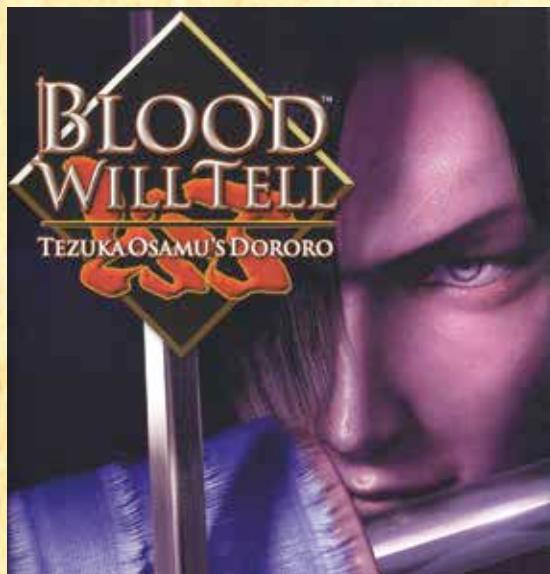
You were spoilt for choice on the PS2. By that era, game development was pretty much streamlined and larger publishers were looking at developing more games at a lower cost. Usually, this meant some sort of cutback. Usually in the cut-scenes or smaller levels etc. What this did was force developers to really think out of the box. Games like Katamari Damacy had you play as a sentient adhesive ball that rolls around and collected increasingly greater objects, ranging from thumbtacks to people to mountains. The game was published by Bandai Namco and cost less than a million dollars to make. It went on to become a sleeper hit with 5 sequels arriving soon after.

The seventh generation of gaming also saw a bunch of Double-A games hit both the Xbox 360 and the PS3. It was during this time that the industry really started to change. With the added benefits of faster internet speeds, gamers could now just download their games onto their consoles. This meant that the need for physical discs and physical

marketing was nearing an end. Of course, the physical medium will never really fade out with diehards and collectors willing to shell out a pretty penny for physical/special edition copies of games. What began life as a Double-A game was now slowly being turned into what we now call Indie games. Games that are produced by a smaller studio, and are usually not affiliated with a larger publisher. In fact, the legacy and DNA of the Double-A game are very much present in a ton of modern titles. Hellblade; Senua's Sacrifice, Psychonauts, and more. In fact, even a gem such as Metro: Exodus could be somewhat classified as a Double-A game. Moving down the ladder, A game like Raji: An Ancient Epic could also realistically be looked at as a Double-A game for a modern audience. It's not the quality that's in question here but more the ability to experiment and push back against an increasingly sterile industry.

It's not that these kinds of games die out, it's just that they became something else. Bigger publishers were not willing to put their money into smaller games and with the cost of development becoming cheaper in many cases, it is now up to independent developers to truly carry on the legacy of experimentation set by the idea of the Double-A game. Maybe we will see a resurgence in smaller core experiences in video games but with the way the industry is heading right now, that might not be a remote possibility. The industry has shifted toward large big-budget releases that appeal to the largest audience possible. We will always have Steam and its myriad indie games and titles but again, with the way things are you have to sift through a ton of bad games to really hit gold. It also really does not help the industry when companies like EA and Activision exist.

Parasites like EA doing their best to squeeze out every drop of blood from gamers with microtransactions and other predatory practices while companies like RockStar have fallen victim to their own successes. But, with the rise and ease of use of engines such as Unity and Unreal 5, we could get titles that are weird and varied while still retaining the



polish that modern gamers are used to. As we've mentioned above, there are a ton of games that have mid-sized budg-

ets that force developers to really think out of the box, but these experiences are few and far between. One can only

hope. Until then, I'll be mashing my PS2 controller trying to beat Godhand at the hardest difficulty. Wish me luck! *

A few Double-A games that are still worth sinking a bit of time into

Godhand: PS2

Developed by the geniuses at Clover Studio, Godhand was a brawler like no other. Imagine games like Final Fight and Street of Rage but with a third-person perspective and the most varied and customisable moves list this side of the Atlantic. The game has a silly tone and was



not the most polished experience out there but the crushing combat and adjusting difficulty makes this a gem in the rough. You can chain multiple combos together, if only you pay attention to what you're doing. It's intense, crazy and most importantly an incredibly fun game. If you like fast-paced brawlers, you'll love Godhand.

Fear Effect: PS1

Fear Effect was essentially an RE (Resident Evil) clone but it had its own unique sense of style and art direction. Sure, you get the basic pre-rendered backgrounds and the tight camera angles, but Fear Effect had a cool cell-shaded look to all its characters. This made them instantly recognizable and really added some colour and style to the proceedings. The game is very similar to RE as in it's a third-person shooter but it has a unique mechanic of a health bar that's replaced by a Fear Meter. The more scared you are, the faster you'll lose health. The game had you play as three different protagonists, each with a distinct storyline and gameplay. If you're an RE fan, you should check out Fear Effect and its sequel.

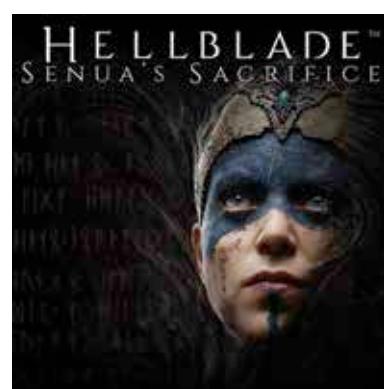
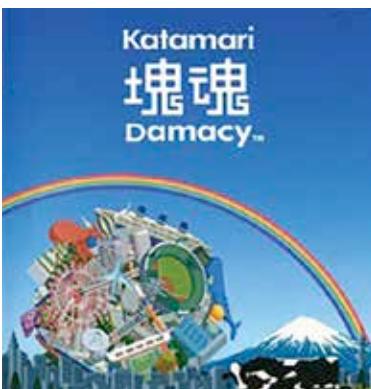
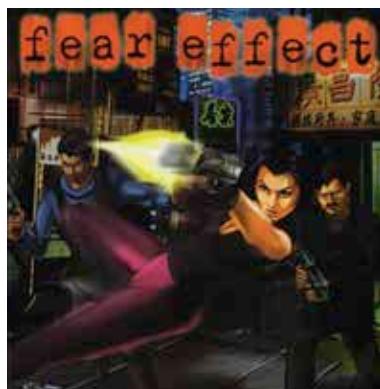
Katamari Damacy: PS2

One of the more unique games to have emerged from the Double-A era, Katamari Damacy sees you take the form of an adhesive ball picking up things wherever it rolls. It's a strange but surprisingly addictive game that really shows off the creativity and imagination of its develop-

ers. The game's plot concerns a diminutive prince, who's on a mission to rebuild the stars, constellations, and Moon, which were accidentally destroyed by his father, the King of All Cosmos. Yeah, it's a little strange but stick with it and you'll be rewarded with a unique and incredibly fun experience.

Hellblade: Senua's Sacrifice: PS4, Xbox, PC

While I'm not a big fan of walking simulators, there are people who enjoy them. Hellblade is one of those games. There isn't much action and it really serves as a crude metaphor for mental illness but as far as budgets go, Senua's Sacrifice is a Double-A game. The game follows a Pict woman called Senua as she traverses the dark lands to free her lover from the clutches of Hela. The graphics look great but for someone like me who prefers an actual game, Hellblade really did not hit the spot. But, if you're into walking simulators with a message then you might enjoy the experience. On the other hand, if you like unique games that really push the envelope, you'd be better served looking elsewhere.



SAINTS ROW

Worth the long wait...
Kinda.

By Asutosh Gantayat
feedback@skoar.in



Saints Row is here after a long wait, 9 years since Saints Row IV, one since Saints Row the Third, and 7 years if you count Saints Row Gat Out of Hell released. It is a sandbox game of shooting, driving, and mainly shooting. The Saints Row IV used to be mind-boggling with the themes like alien invasion, time travel, etc. but compared to that, the new game is just plain and simple. There are still some good missions like LARPing, Prison Break, etc., but it is nothing compared to some of the ridiculous missions of the old ones.

GRAPHICS

The new Saints Row game graphics are nothing compared to the Next-Gen games. The cartoonish graphics fit the gameplay but are not visually pleasing. We played the game keeping Ray Tracing as High, but there were very few differences in the quality. The ray tracing does not work in many areas as there are not many reflecting surfaces, but even near glass and water, the reflection is not very Next-Gen. Except for the ray

tracing option, the graphics really feels good for a not-so-serious shooting game with funny finishers (in one of the finishers, we killed the enemy by slapping the face).

STORY & GAMEPLAY

The story takes place in a fictional city Santo Ileso where you with your 3 best friends rise to create a criminal empire under the name "The Saints". You start as a corporate employer, but by the end of the game, you will have created a whole criminal empire in the city by taking over almost all the places and gangs on your own turf. Alongside main missions, there are a ton of side and character missions.

The main story is of building the criminal empire from scratch along with your friends by establishing various ventures and murdering everyone who stands in the way (most of

the time). The character missions when completed, provide some background story to your NPC friends better and improve their stats along with the weapons they carry.

To grow the criminal empire various ventures, need to be established that get unlocked as the main story progresses. These ventures provide a good source of

income according to the number of missions completed. There is a venture when established will provide some unique weapons after its completion that can be used at any time like a flying skateboard, a gadget that can shoot through walls, etc. There is also a good old insurance scam venture. There is another new and unique mission in form of LARPing venture; here you dress as a warrior and fight waves of enemies through fake guns, actions, and sounds. Whereas some of the ventures have just



MOAR!

DEVELOPER

Deep Silver Volition

PUBLISHER

Deep Silver

PLATFORMS

Microsoft Windows,
PlayStation 4,
PlayStation 5, Xbox
One, Xbox Series X/S
and Google Stadia

PLAYED ON

PC

PRICE

₹1,859 on PC



normal/plain missions like stealing a truck after defeating some enemies; towing the enemy's vehicle; delivering acids in a set amount of time, etc.

To establish all the ventures a lot of money is required. Even to complete all the (main) missions a set of conditions need to be met even to unlock the mission and to start playing. These conditions are to establish and complete several ventures (min 6). At the start, the money to establish ventures is small but as the story progresses the money requirement becomes huge. A total minimum of 20 million is required to complete all the missions in the Mission App. Finding money is hard as you will only get a few hundred from defeating the enemies, so the most efficient way would be to complete the side ventures that generate cash according to the number of missions completed. Criminal Ventures can generate around 1-1.5

million in an hour which helps a lot.

There are a lot of repetitive missions most are just shooting the way forward. This also becomes difficult as there is no way of blocking the attacks. The health bar can be filled by performing Finishers like DOOM, and the weapon ammo is filled by defeating enemies. Most of the things in the city can be destroyed either by your hands, weapons, or vehicles. The distance between the start of the mission and your position is too big, and fast travel cannot be used in the middle of the mission; due to this, installing Nitro in the

vehicle is one of the quick ways to travel between points. There are a lot of challenges in the game that provided several mods to the player and to the vehicles. Completing vehicle challenges adds a special ability, and each vehicle has a different ability. In one of the cars, the signature ability was to jump, and another released knives near the tires. The player mods are also good which provide resistance to fire, the ability to crouch, sprint faster, etc. There are also a lot of player abilities that get unlocked as the player level increases. Only 4 of these abilities can be assigned at a single time, and each ability takes a good amount of flow that gets replenished as you murder everyone. There are not many enemy varieties. For the entire game, We found only four types of enemies. First is the normal enemy; Second is the normal enemy with some armour (more bullets); Third is the enemy with

chains that can avoid bullets; Fourth and the final one is a ghost type that can create virtual duplicates of itself. Even mini-bosses are like type 2 with a little tough armour and strong weapons.

BUGS

Gameplay and variety of missions aside, there are a ton of bugs in the release. We played the version with the Day-1 patch, and it still had so many bugs. Some of them are minor bugs like a car going inside the wall, characters bumping into each other while speaking, etc. There are some big bugs in the middle of the missions, which made us restart the mission, and sometimes the game just crashed. In one of the car chase missions, the enemy vehicle should be behind us, and a lot of bullets need to be fired to make it stop. But a few times, the enemy vehicle gets automatically transported to the front of my vehicle, and the car gets destroyed, and the mission failed is shown. This happened 2-3 times, and we had to restart the car chase seen again and again to complete it. In another mission, after taking 20-30min to complete, at the final scene, the game suddenly crashed, and we had to repeat the same mission 3 times to make finally complete it. In another mission, the enemies kept on coming in waves, and a place needed to be defended, but after a few waves, the final wave got stuck at a long distance, and when we tried to go near, it just showed "Leaving the Mission Area" and had to restart the checkpoint to complete. This same problem appeared in several of the missions, and we had to get creative to complete those parts.

VERDICT

Saints Row is great when it sets you to lose just to murder everyone and the ability to customize your own look and the vehicles in the garage. But after spending 25 hours in the game, it just does not have the same effect as the other games did. There are many repetitive missions, and the bugs do not help it in any way. There are some senses of humour that made me laugh, but it is not something that we would like to replay whenever we have free time.*



PlayStation 2 Horror Game That Gave Us Nightmares

These titles sent chills down our spine back in the day!

By D "Ninja Duck" S | feedback@skoar.in

Horror, is perhaps, one of the toughest genres to ace in the gaming world. It takes a lot to give players those occasional moments of shivers running down their spine, yet, wanting to stick around for what happens next. Make a game too scary, and players wouldn't want to continue after a certain point and make it too bland, there's the risk of losing interest altogether. The story also plays a vital role in piquing the curiosity of the players and making them press that coveted 'Add to cart' button. While there's no magic formula for creating the perfect horror game, there are some titles that are still fresh in our memory as they were some of the greatest ones. So, let's take a trip down the memory lane and revisit the PlayStation 2 era, when we came across some of the best horror games.

1. Silent Hill Franchise

It is impossible to be talking about the greatest PlayStation 2 horror games



and not mention this super-hit franchise. The adventure began in 1999, when the game was launched on PlayStation. In 2001, Silent Hill 2 was launched on PlayStation 2 and established itself to be one of the greatest games in the genre. There was no looking back for the developers after this as Silent Hill 3 and 4 were also super successful and had that wow factor. Other titles in the franchise that launched on PlayStation 2 include Silent Hill Origins, Silent Hill: Shattered Memories and Silent Hill: Downpour.

With Shattered Memories, the developers completely reimaged the first Silent Hill game along with introducing some new characters. The game's beginning is similar to the first

one, a man, lost in the middle of nowhere, looking for his daughter named Cheryl. He picks up various clues about her whereabouts along the way and also witnesses the horrors faced by other people in the past. The way the controller vibrated when a ghost was nearby and that eerie laugh followed by some shadows running around was an unforgettable experience. The entire game had two narratives running simultaneously, one with the protagonist looking for his daughter and the other one at a psychiatrist's office. In the latter, we were given certain puzzles to solve which influenced what happened in the former narrative. And who can forget the big reveal in the climax. Silent Hill is one franchise we're not moving on from anytime soon!

2. Fatal Frame Franchise

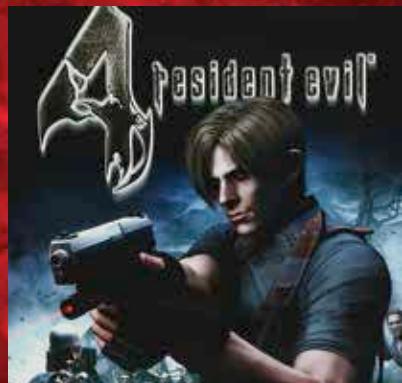
If there's one game that some of us had nightmares after playing, it's this epic franchise. What worked for the series is the intense vulnerable state of

the protagonists, which maintains an atmosphere of terror throughout the gameplay. Your only weapon here is a camera, and the only way to fend off ghosts is by pointing the camera towards them and clicking a picture. We remember walking around a home full of ghosts in Fatal Frame III: The Tormented, with the precious Camera Obscura, looking around for entities. While some of them were moderately scary, others, especially the spirit of the tattooed woman, was enough to want us to sleep with a nightlight on.

The first three installments of Fatal Frame launched for the PlayStation 2 in the years 2001, 2003, and 2005 respectively. The latest offering from the makers, Fatal Frame: Mask Of The Lunar Eclipse, was announced recently.

3. Resident Evil 4

One of the greatest games ever belonging to a super-hit franchise, the very mention of Resident Evil 4 instantly takes us back to the creepy village in Spain where our hero, Leon, is sent to rescue the president's daughter. Right from the first few minutes, you feel invested in the story, even if you haven't played the previous RE games. That's the beauty of this franchise. Even though all of the games are connected to each other, you can still enjoy them as standalone offerings. From having those epic moments in the story to creating an



aura of mystery as well as action throughout, the developers really surprised us back in 2005 with Resident Evil 4. Some of these moments included shooting those zombies while being

trapped in a small cabin, trying to take down the zombie with the chainsaw, fighting regenerators and coming across the stunning, Ada Wong.

Owing to its popularity, a remake of the game is also on the way and is expected to be available on PlayStation 5 in 2023. The first game in the Resident Evil series released back in 1996, under the name 'Biohazard' in Japan. The latest addition to the franchise, Resident Evil: Village, came out last year and proved itself to be worth all the hype.

4. Clock Tower 3

Clock Tower 3 was the first installment of the franchise to launch for the PlayStation 2. The previous Clock Tower games launched on the PlayStation and were widely considered to be point and click action adventure games. Even though there were horror elements, they remained limited. However, with Clock Tower 3, the developers shifted the game to a pure survival horror genre, resulting in a game that intrigued us with its story while proving to be a bone-chilling experience.

The player takes control of 14-year-old Alyssa, who is living at a boarding school. She receives a letter from her mother, who tells her to go in hiding until her 15th birthday. Alyssa, however, defies her mother's instructions and decides to look for her. The first place that we head to is Alyssa's home, hoping to find her mother there. However, we are greeted by The Dark Gentleman who begins talking in riddles and is honestly creepy. Soon, we find our first bottle of Holy Water. The narrative takes an unexpected turn and we are sent back in time to London, during the second world war. After exploring for a while, we witness our first ghost, a man with a sledgehammer. The game introduces us to several such angry ghosts and the only way to lay them to rest is to returning a particular item to them. The most striking aspect of the gameplay is the way the game goes into 'panic mode' when a spirit is around. Alyssa tosses and tumbles while in panic mode which means the chances

of her being captured by a ghost exceeds. This element of survival horror, along with a rich storyline, is what made Clock Tower 3 one of the best PS2 horror games.

5. Haunting Ground

Often termed as the 'spiritual successor' to the Clock Tower games, Haunting Ground is yet another survival horror game that's hard to move on from. The game introduced us to Fiona, who finds herself in the dungeon of a large castle. She soon finds a white dog and names him Hewie. No brownie points for guessing that the castle is full of horrific creatures, one of them being Debilitas, whom we meet early on in the game. In the first few minutes of the game, Fiona is chased by Debilitas who wants to play with her as he thinks she is a doll. As the narrative moves further, Debilitas is stopped (briefly) by Riccardo Belli, the castle's keeper, who isn't what he pretends to be.

Players can draw many similarities between Clock Tower 3 and Haunting Ground, the most prominent being the protagonist losing balance while in panic mode. Haunting Ground derived most of its fear through its sound effects. The background score that plays when Fiona is being chased by an enemy, Fiona's footsteps while walking around the castle, the eerie silence in the game which is suddenly disrupted by a chase sequence, and so on. This game remains a hidden gem in the horror world till date and if you were one of the lucky ones who got to



play it back in the PlayStation 2 era, you'd recall it with a smile on your face.

These were some of the best horror games that we experienced on the PlayStation 2. Which one is your favourite? Do let us know.*

Gaming, Game Design and Development, Gamification, the key driving factors to Atmanirbhar Bharat

Gaming has always been a fantasy for the student community as they would always love to be engaged in some form of action or the other. The academicians should understand the same and create opportunities for them to excel in what they wish to do in turn contributing towards their overall development. The advent of Education 4.0 will fuel the change in the landscape of education from what is being offered within the walls of the institute to the ones that address the challenges being faced by the society in innovative ways with the help of advancements in educational technology. However, such a transformation is only possible when the learners gain necessary interest in learning by actively engaging with the content and exploring its potential applications. The contents available in traditional formats like books, videos, etc. at times may not bring in the kind of interest among the learner to get going with doing great things on their subject of study. Gamification plays a vital role in improving the retention of the concepts being learned through interaction with the content and its application environment. Also, the context aspect added to the gamification platforms gives the overall big picture to the learner and makes them understand their progress towards the overall attainment of the learning outcomes.

Gamification of learning content requires a lot of effort, as there are only limited human resources available to create the same across the domains. The primary reason for such a shortage of the gamified con-



Dr Raghuvir VR

Dean Academics,
KL University, Vijaywada

tent is the lack of awareness among the learners on the importance of egaming activities. The taboo in seeing egames as a distraction for a long time has resulted in preventing the young minds from exploring the same. eGaming develops better hand-eye coordination and enhances the reflex of the mind, enabling them to gain greater focus on their environment. The introduction of collaborative egaming platforms have enabled the gamers to solve a challenge as a team knowing the strengths and weaknesses of their team members thus resulting in greater satisfaction of achievement. Allowing the students to be involved in esports and

enabling them to explore the opportunities for designing the games for the future is something that the institutes should take seriously in the days to come. With the advancements in technologies like Augmented, Virtual and Mixed Reality, mere introduction of the same to the students is of no benefit unless we guide them to create the contents for the consumption of the world. The introduction of Metaverse platform has opened up greater opportunities for the organizations across the world to create a better experience for their customers across the domains like marketing, ecommerce, education, healthcare, etc. These virtual experience platforms enable the learners to try and explore the possibilities which otherwise could not be done in a real-world environment. Be it practicing as a lawyer, doctor, manager, etc. or being a rock star, player in a soccer team anything is possible for the future generation in the platforms like metaverse. Organizations including educational institutions are getting ready for this virtual transformation as their business lies where their customers are. It's high time for the educational institutes to give the opportunity to the learners to be involved in esports and kindle their interest to design new games and gamification platforms for the benefit of people across various domains. It's been a very long time since the creative side of the learners is seen and challenged due to the traditional process of education. Let us tap that hidden potential of the generation that is game for anything and make the country a self-sustainable one. Jai Hind!!! ■

MERCUSYS®



Fill Your Home with Mesh WiFi

AC1300 Whole Home Mesh WiFi System

Halo H30G



Dual Band
Wi-Fi



2x Gigabit
Port



Seamless
Roaming



Beamforming
Technology



Self-Healing



Multi-Mode



Parental
Control



QoS
Support

Available in 3 Pack & 2 Pack

TP-Link India wishes you and your family a Happy and Prosperous Diwali Season.



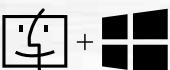
SEAGATE

Extra Room For Your Digital Library

External HDDs
with up to
5TB space



R Rescue
DATA RECOVERY
SERVICES



USB
3.0

NOW AVAIL

Instant drive replacement at SeaCare+ centres in Chennai, Kolkata, Mumbai and New Delhi.

For sales enquiries, contact: **North, East & Central:** Mayank Singh – 9654455821. **West:** Jayesh Toshniwal – 9004808884. **South:** Kiran Bobby – 9880948355. Seagate Authorised Sub-Distributor: **Agra:** B.M. Computers – 9336064959, MKG Computers Pvt. Ltd. – 9310975612. **Ahmedabad:** Earth Syscom – 9998954766, Silverline IT Hub – 9825329566. **Allahabad:** ABC Computers – 7985654457, Akash Infotech – 9839173576. Shree Enterprises – 7651862128. **Bangalore:** Jain Infoways – 9916584175, Jainex Technologies – 9845048800, Mega Compu World – 9980073374. **Bareilly:** R D Computers – 9837070620. **Bhopal:** Deep Computers – 9300729369. **Bhubaneswar:** Nigama Comptech – 9930712735, Infocare Solutions – 9437036615, Shiva Computing Solutions Pvt Ltd – 9437764208. **Chandigarh:** Computer Ware House – 9316133125, Radha Trading Co. – 9872779666. **Chennai:** I Com Systems – 9840753857, Trilogic Computers Pvt Ltd – 9940427222, UMS Infotech – 9840085237, Best Buy Infotech – 9150015098, Swastik Computers – 9840039867. **Coimbatore:** Agni Electronics – 7402453377, Ozone Computer Services – 9842215245, IT Zone – 9842564330, Savithri Digital Computers – 9843330221. **Calicut:** 3G Mobile World – 9746009933. **Dehradun:** Satya IT Solutions – 9887061890, The Print Mall – 7060406071. **Delhi:** Avook Global Ltd. – 9810150943, Bhagwati Computronics – 9810269505, Goodwill Digital India – 9871667772, Intratec – 9891791933, JMJ Infotech – 9810313322. **Dindigul:** ABC Computers – 9842117951. **Gurugram:** M V Infotech Systems – 9811103171, Shopper World – 9717417000. **Guwahati:** Datamation Services – 9435011393, Mamta Infotech – 8822301560. **HUBLI:** RT Computer Services – 9008787592. **Indore:** Horizon Computers – 9329420412, Shagun Computers – 7389917444, Progressive Technology – 9826043456, Kalptaru Computer - 9893091489. **Jabalpur:** Microland Computers – 9827065718. **Jaipur:** Advance Computers – 9571368666, Suruchi Computers – 9314481582. **Jamshedpur:** Dot Com – 9386082555. **Kanpur:** Wellknown Computers Pvt Ltd – 9305837020. **Kochi:** Forerun Computers & Systems – 9544800294, PoojaTech – 9846004786, Rodlite – 8111999832, Aptech Systems – 9400890605. **Kolkata:** Suntronic Systems – 9831283742. **Ludhiana:** Rainbow Technologies – 9914241716. **Lucknow:** AAKS Technologies – 98339922707, Consol Info – 9984441222, Info Shoppe – 9839173576, Omni Technosoft – 9335978332. **Madurai:** Computer Waves – 9790972729. **Meerut:** Kashish Infosys – 9837893355. **Moradabad:** Agarwal Infosys – 9917805666. **Mumbai:** Chip Com Traders – 9820237468, Om Shakti Computers – 9820747131, Solutions India – 9322100773. **Nagpur:** Aurodivine Technologies – 9370101303. **Patna:** Digital Equipments – 9835279753, Maahi Computers – 9334116849, Sharla Computer – 9934360117. **Pune:** Chip Com Traders – 9511940340, Data Care Corporation – 9325936086. **Raigarh:** Virus Computers – 9993287777. **Raipur:** Radhamadhav Enterprises – 8103682954. **Vansh Computer** – 9300083848. **Ranchi:** Chokhani Computers Pvt Ltd – 9334435636. **Rourkela:** Unitech Engineers – 9437045274. **Secunderabad:** Compage Computers – 9849006438. **Shweta Computers & Peripherals** – 9866776000, Vishal Peripherals – 9866157801. **Trichy:** Fusion Systems – 9842450204. **Trivandrum:** Logitech Infoway – 9447060600. **Varanasi:** MSM Computer World – 9839486607, Om Sai Computers – 9792011133, Photocare – 784487100. **Visakhapatnam:** Batechman Technologies – 7386558419.

Also
available at:Our retail
Partners:Seagate
Authorised Distributor

9811059025



TOLL FREE HELPLINE

Call us at: 1800 309 2525



FREE PICKUP & DROP

Email us at: pickupservice
@inspirsys.comOnline Chat SUPPORT
9am - 6pm

Visit us at: support2.seagate.com

56+ SEACARE CENTRES
Visit us at: www.seacare.co.in