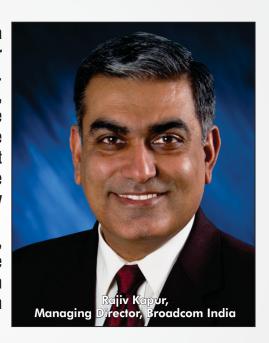# "In India, the benefits and impact of live digital TV are just the starting point of a new world for digital value added services for TV."

Broadcom Corporation, a fortune 500 company, a global innovation leader in semiconductor solutions for wired and wireless communications. Broadcom® products seamlessly deliver voice, video, data and multimedia connectivity in the home, office and mobile environments. With the industry's broadest portfolio of state-of-the-art system-on-a-chip and embedded software solutions, Broadcom is changing the world by Connecting everything.

Interviewed Rajiv Kapur, Managing Director, Broadcom India about Broadcom's role in the changing Indian television industry landscape in the wake of the government's mandate on digitisation.

Rajiv Kapur,
Managing Director, Broadcom India

Comment on the revolution happening in the Indian television industry?

As the India television market continues its mandated transition from analog to digital, the home viewing experience for subscribers will improve greatly. The better picture quality available in digital broadcasts, combined with increasing sales of LCD panel TVs, will make an immediate impact for TV subscribers in India. In the long term, digital TV services will also allow regional and national operators to deliver better quality of service, with easier management and metric tracking. In India, the benefits and impact of live digital TV are just the starting point of a new world for digital value added services for TV. We are already seeing increasing HD content coming from broadcasters, and there is early-stage interest in planning for UltraHD (also known as 4k).

According to you what are the key factors driving Digitization in India?

The Indian TV market has come a long way over the past 20 years, when a single Indian government broadcaster provided a handful of channels for the entire country. On the biggest factors is the years-long, government-mandated changeover from analog broadcast to digital transmissions. Other trends playing a role in digitization in India include the deregulation and subsequent explosion of new operators on-hand to offer TV upgrades. Combined, these factors are driving competition and new features that will entice consumers to re-think how they watch TV. Additionally, changes in regulation are open up a higher percentage of FDI investments and are increasing global interest in India, which is a major driver of digitization globally.

What opportunities does digitization offer to the semiconductor industry?

Digitization of the television industry creates a need for set-top boxes with every digital TV set. The estimated market in India today is 140 million sets and growing.

Digitization requires a sophisticated head-end to be setup, which includes electronic equipment built on powerful, cost-efficient semiconductors. Additionally, operators now have the opportunity to build two-way networks that will give subscribers new interactive services built on new infrastructure and modems.

Give us an overview of Broadcom's role in the digitization of the Indian cable TV industry. What are some of the technologies from Broadcom that will aid the process of digitization?

Broadcom, as a global leader in STB technology, has focused investments in solutions to help operators drive digitization in India. We have engineered fully integrated single SoCs for ultra-low cost standard definition (SD) MPEG-2 zappers with a turnkey middleware stack specific for the Indian cable market. Broadcom has also invested in entry-level high definition (HD) STBs to complement the range of medium and high end solutions for India's diverse market needs. Our portfolio diversity is unparalleled with cable, direct-to-home (DTH), terrestrial, IPTV, cable modems, Ethernet over Coax (EoC), Wi-Fi, Bluetooth and passive optical networking (PON) leadership, to name a few. This allows us to bring a complete band of technologies to operators, which helps them win in the Indian market.

What are Broadcom's recent innovations and solutions for the cable industry? What are the strengths of your products against competition?

Broadcom offers a host of solutions for the cable industry and specific to emerging markets like India, ranging from entry-level ULC standard definition MPEG-2 devices to entry-level high-definition AVCs, and even to multi-tuner solutions for full home converged services.

Broadcom's differentiating features for consumers include fast channel change and adaptive volume leveling for a better viewing experience.

At the operator level, Broadcom's turnkey solutions include advanced levels of integration bringing benefits of cost, performance and simplicity of board design. Our market-optimized hardware with carefully selected components to meet performance in local conditions and full royalty-free software stacks combine to provide faster time to market and

improved user interfaces including basic games, 7 day EPG, local language font etc.

Tell us about your recent tie-ups in the Indian TV industry?

- MCL: https://www.broadcom.com/press/release.php?id=s750053
- Tata Sky: https://www.broadcom.com/press/release.php?id=s774670
- Dish TV: https://www.broadcom.com/press/release.php?id=s775480

What are Broadcom's investments and R&D plans to tap this market?

Broadcom has a dedicated staff based in India; we employ a large end-to-end set-top box team in Bangalore that works on many global products. This India-based team also makes major contributions to hardware, chip and software design for emerging country solutions. Our R&D center in Bangalore is the largest after our headquarters in Irvine, Calif. (USA), and is has grown more than 4x in the past 5 years.

What are the challenges that you would like to overcome?

Like the large and diverse country of India itself, the markets within this region—particularly cable--are also segmented   Issues such as physical cable infrastructure and servicing needs are unique challenges for the India market, which require high performance solutions that can protect against power and lightning surges common in India. With intelligent design, Broadcom has created solutions specifically for these physical and environmental changes specific to the region—and will continue to innovate in the months and years to come.

Which are the various application areas that benefit from 13b?

The enhancements and new capabilities in Release 2013b run across nearly all the application areas in which our products are being used. Some examples of the application areas that would benefit are:

- Data Analytics
- Data Mining
- Handling Large Data
- Large Scale Modeling
- Image and Video Processing
- C and HDL Code Generation
- Support for Low-Cost Hardware
- Model Verification and Validation
- Code Verification and Proving the Absence of Runtime Errors