

## Equipment Report

# CH Precision I1 Universal Integrated Amplifier

## Upending Expectations

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**T**he standard reason for buying an integrated amp is to save money and space—if not with total sonic impunity, then at least without incurring a major sonic sacrifice. Integrations enable this by merging a lineage and power amp into one unit, reducing by half the required number of power supplies and chassis. That may not sound like a big deal, but those are two of an audio component's most expensive parts. Of course, having two functions share a power supply is going to entail some sonic penalty, but integrations at least partially compensate by eliminating a set of interconnects, which exact their own toll on sound.

Thus goes the eminently logical case for integrated amps. But does that logic still hold when the unit in question's price is deep into separate-component territory? The answer is yes, but only if that amp sets new standards for the genre and is so unlike other integrations that it effectively creates a new product category. That's the charter of CH Precision's new I1, an integrated amp that upends nearly everything we've come to know about these components.

### Justifying the Price

The first expectation the I1 shatters is price. Take a trip through a TAS Buyer's Guide issue and you'll find that most integrations cost well under \$15,000. In contrast, the I1 sells for a lofty \$38,000—and that's just for starters. Like a Porsche, the I1's

sticker climbs steeply as you option it out. Fully loaded, this integration peaks at over \$50,000.

But it doesn't take long to realize that the I1 resembles a traditional integration about as much as a modern Leica takes after an old Instamatic. Consider, for instance, the basic matter of inputs. Standard integrations accommodate only line-level analog sources. Lately, a few have sprouted a digital port too. In contrast, the I1 can handle those line-level analog sources, plus moving-coil cartridges, NAS-based music streamed over an Ethernet network, PCs, Macs, and smartphones via USB, and digital transports using SPDIF, AES/EBU, TosLink, or the proprietary CH Link HD.

The upshot of this orgy of inputs is that unlike nor-

mal integrations, into which you end up plugging ancillary electronics such as phono-stages, DACs, and streamers, the I1 is truly self-contained. CH Precision, it turns out, had good reason for dubbing the I1 a "universal" integration amp.

Another way in which the I1 deviates from—and improves upon—other members of its species is through modularity. Standard integrations have set hardware configurations. That is, they support a fixed number of inputs and outputs, each of which is of a pre-determined type. The I1 has no such restrictions. Its back panel is not so much an array of connectors as the open end of a card cage into which you insert boards of varying functionality. In this way you can customize an I1 to fit your specific needs, both now and in the future.

Even in its base configuration, the I1 is, as the audio industry would say, "nicely equipped." The unit comes standard with an analog I/O board that supports three sources, each of which can be either single-ended or balanced. Also included is a digital input board with SPDIF, AES/EBU, TosLink, and CH Link HD ports, as well as an Ethernet Control board that enables remote control. To these the buyer can add any combination of additional digital boards, plus phono-stage, network streaming, USB, and SYNC I/O (for external clocking) boards. Fully decked out, the I1 is a DAC/streamer/lineage/phono-stage and, of course, a stereo amplifier.

Another distinction of the I1 is the price and pedi-

# Equipment Report

## CH Precision I1 Universal Integrated Amplifier

gree of the components that comprise it. For instance, when configured comparably to the I1 base system, CH's stand-alone C1 DAC/controller costs \$32,000 all by itself. Similarly, the company's P1 dedicated phono-stage runs \$31,000. And the A1 stereo power amp, which is nearly identical to the I1's power amp section, comes in at \$37,000. For those not keeping score, that totals up to over a hundred grand of donor componentry.

If you're having trouble believing that, for instance, a \$37,000 A1 power amp can reside essentially intact within the \$38,000 I1, which also includes a lot of other stuff, well, you're not alone. But that is indeed the situation. The two amps have the same circuit, the same output, the same self-regulating bias that adjusts itself automatically based on the amp's operating temperature, the same vibration-reducing "silent block" mounting of the massive transformer, the same 450kHz bandwidth, and the same ability to optimize global feedback for any speaker. True, the transformer in the I1 is "only" 1000VA compared to the A1's 1200VA. Something had to give. Still, the A1 is representative of the extent to which the leading-edge technology from CH's separates made its way into the I1.

Furthermore, as pricey as those separates are, I'm here to tell you that they're worth every penny. The C1, A1, and P1 are among the best of their kind in the world. Each of these Swiss-made components has been showered with international accolades, and each has won a Golden Ear Award. In the I1, you

get the heart of all three of them—at half the price. The inescapable conclusion is that although the I1 shatters the integrated price ceiling, one expectation it doesn't upend is value. The I1, like all integrations, still saves its buyers money.

### Conserving Space

Besides getting a good deal, saving space is the other primary reason audiophiles go for integrated amps. A traditional integrated lets you replace two bulky chassis with one. The I1 goes even further since, in an impressive feat of engineering, it consolidates *three* packed chassis. To do this required some creativity. In fact, CH had to rethink entirely certain areas of the I1's architecture to make possible this extreme level of space compression.

For instance, the idea of transplanting the analog volume control from the stand-alone L1 analog linestage was a non-starter. That control alone, with its dense array of ladder resistors, would have occupied a fourth of the I1's precious space. Needing an entirely different approach, CH decided to lean on its digital expertise by designing a hybrid digital/analog volume unit. In this scheme, large volume changes are handled in the analog domain, while the fine-tuning is digital. The benefit of this approach, besides being much more compact, is that even though volume is partially adjusted in the digital domain, there is none of the usual loss of low-level resolution.

The I1's hybrid volume control had a ripple effect throughout the rest of its design. In particular, the de-

cision necessitated that any source needing volume adjustment has to be in the digital domain. Of course, that's not an issue for sources entering the I1 via one of its digital inputs. But what about analog sources? Well, if they need volume attenuation, then the first thing the I1 does is convert them to 384k/32-bit digital. This happens for sources such as a DAC that doesn't have its own volume control. On the other hand, if that DAC *does* have a volume control—and many do, these days—its I1 input can be set to bypass mode, which sidesteps the amp's digital elements entirely. In this way, the I1 enables suitable analog sources to pass through in pure analog.

### Preserving the CH Precision Sound

Having discussed the architectural changes necessary to cram all this componentry and capability into one chassis, it's important to recognize what *wasn't* changed. As already noted, CH transplanted the guts of its various separates to the I1 with minimal changes. Meanwhile, the overall design reflects CH's twin preoccupations with vibration reduction and ultra-wide bandwidth. These two imperatives, both hallmarks of the "Swiss sound," are just as elaborately executed in the I1 as they are throughout the CH lineup.

Of course, these are all academic observations. None of it would matter one whit if the I1 didn't sound like a true CH Precision product. This is where the I1 sets a standard unreachable by mere mortal integrated amps: It's every bit as sonically and musically revelatory as its prestigious stablemates.

I did most of my auditioning through the exceptional Wilson Benesch Resolution speakers. For linestage, phono-stage, and power amp reference points, I used my Goldmund Mimesis 22, PH01, and Mimesis 8, respectively. Rounding out the reference setup was dCS' Rossini DAC and the equally impressive Lyra Etna cartridge mounted to a Graham 'arm on a Goldmund 'table. As you might imagine, this is a very fine-sounding reference system. Above all, it is highly musical; but it's also detailed, dynamic, fast, airy, and rich.

On this system, for example, Neil Young's voice and guitar on the *Live from Massey Hall* CD are palpable. Also, the spatial depth on Mercury's recording of Prokofiev's *Romeo and Juliet* is eerily real, and the third movement of Mahler's Second Symphony on Decca's LSO/Solti LP moves thrillingly from pianissimo solo turns to instrumental grunts to full-blown orchestral assault. In short, the I1 that was soon to stand in for the reference electronics had a lot to live up to.

I expected the reference and CH-based systems to sound similar. After all, some of CH's founders come from Goldmund. Further, both companies, like most of the Swiss audio industry, adhere to the core strategies of vibration evacuation and wide bandwidth that Goldmund pioneered decades ago. However, surprisingly, the two setups didn't sound the same at all. In fact, when I swapped in the I1, I needed a considerable adjustment period, since so many things were different.

First and foremost, the tonal balance of the I1 isn't as overtly rich as that of the Goldmund components. At first, I deemed this an I1 deficiency. But once I got through the adjustment phase, I realized that the CH is by far the more neutral, and that

# Equipment Report CH Precision I1 Universal Integrated Amplifier

the Goldmund's sonic richness is actually a lower-mid-range tubbiness. By avoiding such coloration, the I1 is free to reveal all kinds of things that the Goldmund obscures. There is, for instance, a nice little bass line on "Wouldn't It Be Nice" from the 45rpm Analogue Productions pressing of the Beach Boys' *Pet Sounds*. I never heard it until I hooked up the I1; then it was perfectly distinct.

Besides tonal balance and extra detail, the next thing I noticed was that I was listening to entire albums rather than individual tracks. I traced this to the I1's significantly lower distortion and along with it, greater ease. Greater clarity and greater ease don't often come in the same package. When they do, the engagement factor takes a major leap forward.

I also had to adjust to the I1's dynamic range. Goldmund components are famous for being highly dynamic, but the I1 is off the charts. For example, through the I1 the kettledrum that kicks off that third movement of the Mahler Second came through so forcefully and unexpectedly—from the dead-silent background—that it gave my heart a real start. Then, throughout this movement, the I1 delivered dynamic peaks and valleys that couldn't have had more contrast: The big sections were *huge*; the delightful measures in which various instruments take turns in the spotlight were infinitely delicate.

Through the I1, Neil Young's voice on "Old Man" was every bit as sonorous and realistic as it is with the reference gear, but I also heard—as I did on other music—more rhythmic propul-

sion with the CH Precision. Similarly, the I1 reproduced Prokofiev's stage and instruments in all their previous glory, but that amp also made it even easier to follow the interleaved musical lines.

Throughout my listening to sources entering the I1 via its analog inputs, I heard nothing to suggest that there was an extra ADC and DAC stage (can I just abbreviate this to "ADAC"?), in the signal path. Obviously, though, you can't insert two digital conversions without some sonic ramification. I wanted to know what price was being paid for the added flexibility and space-saving of using a quasi-digital volume control. To that end, I concocted an experiment.

First, I played a track from the Rossini DAC's analog outputs to the I1, going through the latter in normal fashion—that is, with the ADAC in the signal path. I listened to the Prokofiev. Then I played the same track again, but this time with the I1 input in bypass mode. As I've already mentioned, you can only use this mode if the source component has its own such control. Handily, the Rossini does. In this configuration, I was listening to the Rossini straight through to the I1's power amp, bypassing the ADAC. What differences did I hear? Amazingly, I heard absolutely none.

Perhaps, I thought, a more "naked" track would better illuminate the ADAC's sonic effect. I spun up Michael Wolff's *2 AM*. In bypass mode, with no ADAC, the recording's piano was absolutely ravishing; high notes tinkled like a real piano's, and the instrument's decays and

## Specs & Pricing

**Standard inputs:** Analog (balanced and single-ended), SPDIF (coax, TosLink), AES/EBU, CH Link HD

**Optional inputs:** USB, Ethernet, Word Clock, moving-coil phono.

**Power output:** 100Wpc into 8 ohms 175Wpc into 4 ohms

**Outputs:** Balanced analog, word clock, stereo loudspeaker binding posts

**Digital resolution:** DSD64 via DoP, PCM up to 192kHz/24bits (SPDIF); Native DSD256, PCM up to 768kHz/32bits (CH Link

HD); DSD128 via DoP, PCM up to 384kHz/24bits (USB); DSD256, PCM up to 384kHz/24bits (Ethernet)

**Dimensions:** 17.3" x 17.3" x 4.7"

**Weight:** 92 lbs.

**Price:** Base Unit, \$38,000; additional digital board, \$2500; USB board, \$3000; streaming board, \$5000; phonostage board, \$4500; Clock sync board, \$1500.

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overtones—which in this recording have nowhere to hide—simply sounded *right*. Meanwhile, the upright bass proved solid and chesty. This was a *tour de force*.

So what happened when I reverted from bypass to normal mode, thereby inserting the ADAC? This time I could hear a difference, but it wasn't much. The ADAC made those top piano notes a hair less airy and tinkly than they'd been in bypass mode. Other than that subtlety, which would never have been noticeable without a direct comparison, everything else was the same.

From this test I concluded that, while physics dictates that CH's ADAC approach can't be done with complete impunity, the I1 comes astonishingly close to that ideal. The penalty for going through the ADAC is so subtle and limited as to be inconsequential. That said, if you have a source component with a volume control as good as the Rossini's, and you want to get the very most out of that source, you can always run it through the I1 in bypass mode.

The bypass gave me a window into the sound of the purely analog elements of the I1, which were every bit as impressive as I remembered them from my original A1 review sessions. Now, it was time to get a bead on this integrated's DAC performance. Since both the I1 and the Rossini have digital inputs, line-level analog outputs, and a volume control, it was easy to wire them both up as DACs driving my Goldmund linestage. As source material, I used various hi-res files hosted on my Synology NAS.

While the two DACs sounded different, they both proved wonderful in their own way. I would have no qualms with owning either. The main difference: The CH is airier—and its tonal balance lighter—than the Rossini. Also, reflecting their respective countries of origin, the dCS evinces a more laid-back "British" sound, while the CH is squarely in the more assertive Swiss

# Equipment Report CH Precision I1 Universal Integrated Amplifier

school. The choice comes down to personal preference.

In putting the I1's DAC through its paces I found, as is often the case these days, that streaming sounds best. Of all the inputs, it's the most open and dynamically unbounded, with nice, tight imaging. USB, once you get the settings right—on my PC running JRiver, the XMOS wasapi [Windows Audio Session API] driver proved best—very nearly matches the outstanding streaming mode. Coax SPDIF also proved up to snuff.

Having explored the I1's DAC, it was on to the phono-stage. Since the phono board implements the same circuit as the stand-alone P1, it's not surprising that, like that unit, the I1 extracts its signal directly from the cartridge's coil in current mode. This is in contrast to most phono stages, which derive a signal from the cartridge's voltage output. Aside from being more direct, CH's approach has the benefit of liberating the user from searching for the optimal cartridge loading. The I1 does that automatically.

As it does with other analog sources, the I1 converts phono signals to digital. This has an intriguing upside: Users have their choice of phono equalization curves. Most of us are familiar with the RIAA equalization that all phono stages use to compensate for the opposite EQ applied during the disc mastering. But before RIAA gained its status as the industry standard, there were proprietary EQ curves used by competing record labels, including EMI, Columbia, Teldec, and Decca. At one time there was also a curve known as eRIAA, for enhanced RIAA.

Implementing all these EQ curves in the analog domain, as would be necessary for a traditional analog phono stage, would be a daunting exercise and basically is rarely done. The result is that if you own any pre-RIAA pressings, you're not hearing them as they were meant to be heard. But implementing these various curves in the digital domain is a relative snap. CH took the trouble to code it, and the upshot is that a tap on a tablet summons any of the aforementioned EQ curves. With the I1 you can select any of them in real time, which makes plain exactly what the curves are doing. This feature will be a boon for collectors of early LPs.

To assess the phono board's sound, I first listened to the Etna driving my Goldmund phono stage and linestage, with that signal then moving on to the I1's power amp. The background wasn't particularly quiet, which obscured some details, but the transients were superb and overall this setup produced airy, vibrant, colorful, and highly dynamic sound. Most impressive of all was the visceral level of realism that can only be heard on a great live LP played through an all-analog rig—or so I thought.

Switching to the Etna connected directly to the I1's phono board and then continuing through the integrated amp in normal fashion, I noticed immediately that the I1 phono stage is far quieter than my reference. That allowed previously obscured details to shine. Transients may not have been quite as sharp as with the stand-alone phono stage, but that's a nit considering that this sound, too, was airy, vibrant, colorful, dynamic, and

every bit as viscerally lifelike as in the pure analog scenario. That's quite a testament to the I1, which clearly needs no external phono stage to do full justice to LPs.

Even if the two phono stages had sounded identical, there'd be strong advantages to using the I1's phono card. I've already described the support for a variety of EQ curves, but since even the standard RIAA EQ takes place in the digital domain, it is far more accurate than the analog implementations of other phono stages. You'll also spend far less for this \$4500 board than for an external phono stage of equal caliber, and you'll save the cost—both monetary and sonic—of yet another set of interconnects. Lastly, the I1 board has tons of gain. This is a phono stage that allows you to take full advantage of low-output MC cartridges, such as the Lyra Etna SL that Jacob Heilbrunn has raved about (see his review in Issue 266). The conclusion is that unless you're willing to shell out for a truly extraordinary stand-alone phono stage, there are solid sonic and functional reasons to use the I1's board.

The last thing I needed to know about the I1 was how well it would drive a challenging pair of loudspeakers.

Fortunately, I had on hand the Bowers & Wilkins 800 D3s. As I reported in my review, these speakers sound marvelous—when appropriately powered. My Mimesis 8, despite being rated at a healthy 175Wpc, didn't do it for the 800s; the speakers sounded dynamically flaccid and the bass was just MIA. Not so with the I1. Although rated at a lower wattage, this CH integrated must have a lot of current, for it drove the 800s to all their glory, with popping rhythms and meaty bass.

## Looking Down the Road

No matter how good the I1 sounds—and it'll definitely hook you on CH sonics—you may someday want to extend its performance. Fortunately, unlike other integrateds that are dead-ends other than for their trade-in value, the I1 was built with upgradeability in mind. I've already discussed the internal upgrade path from a base unit to one that's fully loaded. But that's just the start.

Say you want to add a pure analog linestage for your analog sources. CH's L1 linestage will fit the bill. You can use it as an analog controller and connect it to an I1 analog input set to bypass mode. Analog sources will now go straight from the L1 to the



# Equipment Report CH Precision I1 Universal Integrated Amplifier

I1's power amp. Meanwhile, the latter can continue supporting digital sources directly. Or, you can upgrade those as well by complementing the I1 with the standalone C1 digital controller.

Similarly, you can extract better phono-stage performance by supplementing the I1 with the P1 stand-alone phono-stage, which can also be run through the I1 in bypass mode. If you want to complement the I1's digital section with an external clock, the SYNC I/O board makes it compatible with CH's T1 clock. Need a transport? The company makes a very fine one called the D1, which supports both CD and SACD. The D1 can connect to the I1 via the proprietary CH Link HD which, in my testing of the D1 and C1, proved a significantly superior way to pass SACD material.

Then there are the amplifier options. Pair the I1 with one external A1 to use two channels per each amp to bi-amp a pair of speakers. Theoretically, you can bypass the I1's amp altogether, and use the integrated strictly as a front end feeding either a stereo or monoblock pair of CH's flagship M1 power amps. But that's getting into a whole different price class, and I personally prefer the A1 anyway.

The point is that, far from being a dead end, the I1 can serve as a starting point to a more elaborate CH system. When following any of these upgrade paths, you never have to throw away or

sell the I1; just use the sections you still need. You can even move the I1's boards to other CH components. For example, if you buy a C1 and you'd previously purchased a network streaming board for your I1, you can move that board to the stand-alone controller.

## Fixing the Ergonomics

In the midst of my rave reviews of the A1, D1, and C1, I took time out to savage CH's ergonomics. Each component's front panel consists solely of a display and two concentric knobs. This makes for an elegantly clean aesthetic. Similarly, the remote's paucity of buttons is simplicity itself. However, both the front panel and the remote become non-intuitive as soon as you try to do something other than adjust levels or switch sources. With those tools, you're looking for trouble if you need to change a menu setting—and there are lots of them—or merely want to tweak the balance. The remote is useless in these cases; only some obscure combination of knob turns (which knob? which direction?) and/or pushes will achieve the desired result.

With the I1, CH has released a new user interface called the CH Control App. The app is compatible with all CH models, and runs on any Android device. The new UI turns out to be one of the finest in the industry. Now, with an intu-

itive tap, you can change balance, polarity, the phono EQ curve, the amount of global feedback in the amp, and even the color and brightness of the front-panel display. Meanwhile, the app keeps you abreast of what's playing and at what resolution. In streaming mode, you have the ability to delve into your library. Although not as comprehensive as Roon for streamed media (nothing I know of is), the CH Control App has the advantage of encompassing the entirety of the I1's functions.

## Conclusion

I hope I've made it clear that the CH Precision I1 is no ordinary integrated amp. A (very) few integrations can match it in one area or another, but I know of nothing with a comparable combination of pedigree, versatility, footprint, expandability, upgradability, value, and world-class sonics. Yes, the I1 is expensive. But the biggest expectation that this integrated upends is that such devices aren't supposed to be comparable to separates. Yet somehow CH has transported the secret sauce of its own separates into the I1, and is offering the result at less than half the price of the originals. If you have a \$40–50k budget for a complete suite of analog and digital electronics, and were considering separates, you owe it to yourself to experience the I1. **tas**