

# the absolute sound

THE CUTTING EDGE

## CH Precision C1 Preamplifier/DAC, A1 Power Amplifier, D1 Disc Transport/Player

The Torch Is Passed

Alan Taffel



Once upon a time, a few decades ago, a Swiss company named Goldmund revolutionized audio. It started with turntables, which included the world-leading Reference, and branched into electronics and speakers. Its electronics were among the first to employ high-bandwidth, high-slew-rate technology in the service of more accurate reproduction of transients. Its early speakers featured physically adjustable modules. All these products incorporated “mechanical grounding”—the use of great mass to evacuate vibrations, another sonically significant technique Goldmund pioneered.

Although Goldmund’s heyday is long gone, its components from that era were so advanced that many are competitive even today. Much of my own reference system, for instance, is Goldmund gear, and over the years I have had a tough time finding modern products that meet—let alone exceed—their performance.

But if anyone could do it, it would be CH Precision. Its founders hail from Goldmund, circa the company’s golden years, and their design philosophy strives to incorporate and build on

all they absorbed there. The question is, did they succeed? To find out, I pitted a stack of CH Precision electronics against a stack of top-of-the-line Goldmund equivalents.

### System Synergies

I have embarked on exactly two full-system reviews for TAS. The first, a decade ago, covered a then-novel, all-digital system from Goldmund. Due to the nature of that system’s architecture—linestages with only digital outputs, speakers with only digital inputs—it could *only* be reviewed as one inseparable entity. More recently, I evaluated an all-Burmester system. Thanks to its more traditional configuration, I was able to consider each component

# THE CUTTING EDGE - CH Precision C1 Pre/DAC, A1 Power Amp, D1 Transport

on its own, compare it to an equivalent reference, gradually stitch the components together, and ultimately audition the system as a whole, reporting my findings at each step along the way.

Unlike Goldmund and Burmester, CH Precision, a fresh yet highly-pedigreed newcomer from Switzerland, does not make speakers, racks, cables, and power cords, so you can't build a complete system out of CH gear. However, the company does build a power amplifier (the A1), a DAC/preamp controller (the C1), a disc transport/player (the D1), and an optional outboard power supply (the X1). In order to understand exactly what CH Precision was going for, I gathered together the whole lot. My intention was to give it the Burmester treatment, recounting how each unit fared independently, in various combinations, and as parts of an entire system.

However, a funny thing happened during my months of listening. I arrived at two seemingly contrary conclusions. First, after assiduously comparing individual CH components against my references, I concluded that while each was clearly a very high performer, none—with one major exception that I will come to—was as world-rocking as I expect at this exalted price level. Rather, in each case—save for the exception—I could point to a reference component that either sounded better, or performed comparably but was significantly less expensive.

This makes my second conclusion something of a surprise: Together, the CH Precision gear sounds better than anything I have had in my system. Obviously, there is some serious synergy to be had by using the CH components as they were intended to be used: with each other. This is generally true for all brands. Stuff built to play together tends to play best together. But in the CH case, the effect is more pronounced than usual, and there are some obvious reasons why.

For one thing, the CH gear is fully balanced and is meant to be operated in that mode. The balanced inputs and outputs do sound significantly better, so using CH components with single-ended ancillary components is *ipso facto* sub-optimal. Secondly, while the C1 DAC/pre supports several SPDIF input options, it also offers a better one. When connecting a transport to the C1, the input you want to use is the CH Link. This interface ferries PCM signals, of course, but also native DSD. Like all DSD interfaces, though, the CH Link is proprietary, which means you can't hook it up to just any old transport. CH Precision's own D1 naturally supports the CH Link, including its ability to stream raw DSD data from an SACD directly to the C1's army of DACs. This is reason enough to use the D1 and eschew other transports in conjunction with the C1, but an even more important reason is that once you hear the CH Link, regardless of encoding format, you will never go back to SPDIF.

These are but two of many examples of how the CH gear is meant to function as a single unit. Given this, it seems churlish to belabor the minor shortcomings I unearthed when evaluating individual CH models operating outside their intended ecosystem, especially when those shortcomings quite literally disappear in the all-CH scenario. Instead I will report on the extraordinary capabilities of the CH electronics as a whole.

## A Familiar Sound

If I were to assign one word to the CH Precision sound, it would be "familiar." For me, that term speaks volumes, but for you, probably not so much, so I will elaborate.

My reference system is a finely tuned apparatus designed to deliver certain sonic virtues that I not only favor but find reflective of the real thing. First among equals is the virtue of speed—the ability of a system to track dynamic and transient attacks. It takes speed (measured as a high slew rate) to do that. And to my ear doing so makes a big difference in realism. Real piano runs do not slur unless the sustain pedal is depressed. But I can't tell you how many slurred pianos I have heard, along with blunted instrumental attacks, dynamics that fail to startle when they're supposed to, laggardly tempi, and lost detail. Live music never stresses over pulses, peaks, and transients—they come to you effortlessly. But the same can only be said for what I am describing as fast audio gear.

I am also fond of wide dynamic range. Perhaps it comes from being on stage (as a choral singer) with professional orchestras, but the enormous dynamics of live music are ingrained in my

## SPECS & PRICING

### C1 Linestage/DAC

Number and type of inputs:

Configurable for combinations

of analog (balanced, single-ended), SPDIF (coax, TosLink), AES/EBU, USB, Ethernet, CH Link, word clock

Type of outputs: Single-ended analog, balanced analog, word clock

Dimensions: 17.3" x 4.7" x 17.3"

Weight: 55 lbs.

Price: Starting at \$32,975

Weight: 95 lbs.

Price: Starting at \$37,475

### X1 Power Supply

Dimensions: 17.3" x 4.7" x 17.3"

Weight: 55 lbs.

Price: \$14,975

### CH PRECISION

Ch. Du Vallon 26

1030 Bussigny, Switzerland

Phone: 41 (0)21 701 9040

ch-precision.com

### D1 SACD, CD Transport/Player

Formats: CD, CD-R, SACD

Type of outputs: Configurable, CH Link, AES/EBU, SPDIF (coax, TosLink), analog (balanced, single-ended)

Dimensions: 17.3" x 4.7" x 17.3"

Weight: 70.5 lbs.

Price: Starting at \$37,750

### AUDIO ARTS (U.S. Importer)

210 Fifth Avenue

New York, NY 10010

(212) 260-2939

www.audioarts.co

info@audioarts.co

### A1 Monoblock/Stereo power amplifier

Power output: Mono, configurable, 350 watts in 8 ohms; stereo, 100 Wpc into 8 ohms

Number and type of inputs: Configurable, one or two RCA; one or two BNC; one or two XLR

Dimensions: 17.3" x 4.7" x 17.3"

### ASSOCIATED EQUIPMENT

Esoteric K-01 Player/DAC

dCS Scarlatti DAC

Goldmund Mimesis 22

Preamplifier

Goldmund Mimesis 29.4 Power

Amplifiers

Metaphor Acoustics 1

Speakers

Empirical Design cables and power cords

Wireworld Platinum Starlight

USB cable

Goldmund cones and racks

## THE CUTTING EDGE - CH Precision C1 Pre/DAC, A1 Power Amp, D1 Transport

ear. When audio equipment falls short, as it usually does, I feel cheated. I hasten to point out, though, that capturing the full dynamics of a live orchestra is not the same as tracking its microdynamics. The ability to reveal those subtle inflections, which add so much to the musical experience, is a distinct and equally mandatory virtue, but one that has more to do with my third objective.

The last of my Big Three virtues is density of information. All

audio gear edits the original content to some extent. Live music is incredibly dense with timbres, overtones, attacks, delays, grand gestures, tiny details, and a wealth of subtle rhythmic and dynamic variations. The more a piece of equipment can deliver the density of the original event—to the extent it has been captured by the recording—the truer it sounds. Yet this conveyance of dense information must happen as it does in the real world: organically rather than analytically. This is quite a challenge.

When all three virtues are present, as they are in my Goldmund-based reference system, even in the absence of other worthy sonic attributes such as scale, spatiality, imaging, and neutrality, I am invariably drawn into the proceedings. The music and, yes, the sound will carry me away every time.

Now, hopefully, when I say that the CH Precision electronics sound “familiar,” you know what I mean—and what a huge compliment I am paying. With the CH gear, I do not need to make my usual mental recalibration to sound that is slower, more compressed, less impactful, and less musically informative than I am used to hearing from my reference system. That means that when I play the Pentatone SACD of Stravinsky’s *l’Histoire du Soldat*, I hear all the colors of the magnificently recreated orchestra, and all the dynamic fireworks, from the startling timpani to the ever-so-gradual final fadeout. And when I listen to the Michael Wolff Trio’s *2am*, Wolff’s piano has the right attack and the right complement of overtones, which change with every note. And when I listen to the Praga CD of Dvorák’s *Serenades from Bohemia*, I can hear every little dynamic and rhythmic flux. And when I listen to Wilco’s *Whole Love* I want to jump out of my chair and dance.

### A Pedigreed Partnership

The fact that the CH components do what very few others can is easily explained by the background of CH’s founders. Florian Cossy and Thierry Heeb (they being the “C” and “H” of CH, although the letters also form the universal code for Switzerland) are both alums of Goldmund’s golden era. Florian worked primarily on amplifier design, where he absorbed the company’s then ground-breaking philosophies of high speed and mechanical grounding (which explains why the CH gear is so freaking heavy). Indeed, Florian designed several of the components that have been my long-term references. Thierry worked on

## How to Save \$100k on CH Gear

CH Precision components are very, very good but they are also very, very expensive. The stack I assembled for this review, which included two A1 power amps, a C1 DAC/Pre with a multitude of optional cards, a D1 transport with an internal DAC card, and the X1 power supply, totaled a staggering \$175k! If that kind of green is a nonchalant expenditure for you, then good for you, my friend. Go forth and purchase.

However, if you are like most of us, where carrying that kind of load financially is about as easy as carrying a CH component physically, then you will be pleased to learn that entry into the CH ecosystem can be a lot cheaper.

Take the A1, for instance. As described in the main review, each unit actually houses two separate amplifier modules. When used as monoblocks, the A1 can marshal those two modules in a variety of ways to drive a single speaker. But with a menu setting and an additional input card, the A1 becomes a straight ahead stereo amp. Voilà: You just saved \$36k. And as I also indicated in the review, you give up precious little sonically.

The D1 is another area of potential savings. In certain scenarios, it could well be entirely expendable. This is thanks to the C1’s extraordinary performance in USB and, especially, NAS streaming modes. If you are willing to rip your CD collection to a PC or NAS drive, you can save forty grand! I realize the transition to computer-based audio can be a time-consuming pain, but \$40k is a lot of incentive. Furthermore, the C1 sounds better when playing streamed audio than it does when playing D1-sourced signals. The usual rejoinder to this suggestion is that SACDs get left out in the cold. But with downloadable DSD files becoming increasingly prevalent, even that limitation is quickly disappearing.

Finally, the X1 power conditioner can certainly be considered optional. Indeed, as I point out in the review, I prefer the CH sound without it. Boom, another twenty grand pocketed.

The beauty of the CH gear’s modular arrangement is that you can always add elements—or reconfigure existing ones—at any time. Obviously, you can augment your system with an X1 or D1 whenever the whim (or lottery number) hits. But it’s even better than that. For most manufacturers, buying a stereo amp and then moving to monoblocks is a problematic proposition. One option is to trade in the stereo amp toward a pair of monoblocks, undoubtedly at a sizable loss on the original investment.

The other option is to bridge the stereo amp and buy one monoblock. This actually isn’t a great idea. Bridging increases amplifier voltage, but not current, and it halves output impedance. Bridged amplifiers can run into trouble driving low-impedance loads; the load impedance a bridged amplifier sees should ideally be double that for an unbridged amplifier. The CH scheme is the only one I’ve seen where a stereo amp can be converted to a monoblock that will be identical to an additional unit.

So there you have it: a future-proof way to save nearly \$100k on a CH system—\$100k that could go toward a great set of speakers, or a BMW—all with nearly complete sonic impunity. You’re welcome.

## THE CUTTING EDGE - CH Precision C1 Pre/DAC, A1 Power Amp, D1 Transport



the digital side of the house, creating some of the first digital gear that actually played music.

The two left Goldmund when they felt they could push those designs even further but Goldmund boss Michel Reverchon balked at going along. The pair formed CH Precision (with a stop along the way to create the highly-regarded Anagram) to realize the ultimate evolution of the Goldmund philosophy. So the “familiarity” of the CH sound—or, more accurately, its complement of virtues—to my Goldmund-based reference system is not surprising.

What *is* surprising is how many additional virtues CH has been able to add, and how many Goldmund deficits they have overcome. The design-related thinking of CH’s founders has evolved over the years, as have parts-quality and digital technology. All of this helps to account for the sonic superiority of CH over its Goldmund forebears, as well as the switch by Goldmund’s Asian distributors to CH, and the many awards the latter has earned overseas even as it is just being introduced in the States.

How exactly does the CH Precision improve on Goldmund’s classic qualities? The first way is in background noise. Goldmund was never the quietest of electronics, and the CH update only makes that fact more obvious.

CH is also more linear in both frequency response and dynamics. Goldmund is dynamically explosive, no doubt about it. But it also can overshoot, and that is neither pleasant nor accurate. This happens, for instance, on Nirvana’s *Nevermind*. I freely acknowledge that this is a grunge album, but as the terrific documentary *Sound City* makes clear, it was recorded through a Neve analog console straight to analog tape. As a result, for all its grunge, the album has an endearing purity and immediacy. As an example of dynamic linearity, consider “Come as You Are.” The track contains loud, slashing accent chords, which, thanks to the Goldmund’s propensity for dynamic overshoot, break up unbecomingly. Yet through CH they remain perfectly behaved; no overshoot, yet no loss of the intended bite.

The CH’s frequency linearity also means an end to bass roll-off, as well as to the mild but audible euphonic glow the Goldmund

adds to the midrange. Instead, the CH gear is refreshingly neutral through the midband, while bass is taut, pure and strong all the way down, without a trace of bloat. The CH does seem to roll off in the highs a little before the Goldmund does. Both are plenty airy, but the Goldmund has one last ounce of extension that gives it an unbounded sense of openness up there. I miss that a little on the CH, but the air can be almost completely restored by using the superb Van den Hul cables recommended by the importer.

I am surprised to say this, but the CH combo reveals even more information than do my reference

electronics. This is a feat I never believed possible. Nonetheless, on the Stravinsky SACD, the timbral information that delineates each instrument has never been denser—and so the instruments have never before sounded so outright real. I found myself wishing every kid could hear the *Young Person’s Guide to the Orchestra* through this system; the task of differentiating orchestral sections would be child’s play.

Space is the final frontier in which CH Precision exceeds Goldmund. Depth has never been Goldmund’s strong suit and, once again, the CH gear lays that shortcoming bare. Now, with CH, my system is creating the best depth of its life. Indeed, it is creating the grandest soundstage, too. Moreover, images on that soundstage are significantly more focused through CH, lending a nice sense of palpability to instruments and, especially, vocals.

I should mention that all of the above is apparent almost regardless of source: CD, SACD, USB, and even streaming audio. Even the analog input, which is housed on an optional card that slides into the C1’s main chassis, is surprisingly good, considering the sound has to make a round trip to digital and back. There seems to be very little lost in that process, though it’s impossible to say definitively because there is no way to do a true A/B comparison. In any case, the analog input sounds just a hair paler than digital, and the spatial perspective is a tad flatter, but that’s about it in terms of penalties.

The C1’s performance with audio streaming from a NAS drive deserves special mention. Up to now, every streaming-capable DAC I’ve heard has sounded, well, dreadful. I have compared \$20,000 streaming DACs with \$50 SPDIF DACs, the latter winning hands down. But the C1 not only does streaming justice, it is its best-sounding digital input. In streaming mode, the C1 strips away the glaze that is all but unavoidable (though very well controlled on the C1) of USB. Strings and female vocals, which can bedevil USB by sounding artificially hyped, are sublimely natural. Percussion is far more convincing, too. Less obvious—but still significant—improvements include the sound of flutes. With USB to the C1, the instrument is impressively breathy, but with streaming that breathiness is more realistically integrated with the rest of the primary tone.



## Operating the CH Stack

As slick as the CH components are, with their large front-panel displays, card cage modularity, and micro-processor controlled functionality, they could use a little help in the human-engineering department. The MMI (man-machine interface) is among the least intuitive I have seen. But let's start with the basics. The C1 and D1 have separate, visually identical remote controls; yet each has separate functions. This means: you have to juggle two remotes instead of one; you're always grabbing the wrong one; and when you do grab the wrong one, you are issuing an unintended command. A single, integrated remote with easy-to-decipher buttons would be a clear improvement.

Both remotes are of the minimalist school, meaning limited functionality. It's impossible to go directly to a specific track using the D1 remote; instead, you have to cycle through using the FF button either counting clicks (me) or hoping your eyes are good enough to read the display across the room (not me). Meanwhile, the C1 remote has no mute, balance, or polarity buttons, all of which I consider essential.

Both the C1 and D1 front panels echo the CH minimalist gestalt, and both rely entirely on a single set of concentric knobs for all functionality. But remember: there's a lot of functionality, much of it accessible only via a deep menu structure. Both the inner and outer knobs can turn in two directions, and the inner knob can also be given a long or a short push. All of these actions invoke various commands, none of which are labeled. To make matters worse, the effect of a particular action varies depending on the state of the device. A turn of the inner knob means one thing when, for example, the disc drawer is open, but something else when a disc is playing.

The X1 deserves special demerits. Whereas a red pilot light means "Off" for every other CH model, on the X1 it means "On." The completely blank display, which never veers from pure black, only reinforces the impression that the X1 is off when in fact it is operating.

Like early BMW iDrive systems, the CH scheme strives for simplicity but only ends up being confusing and non-intuitive. But also like iDrive, the underlying logic eventually shows through and becomes more natural. You do get used to it. Just don't expect to walk up to these components and "press play." There's no such button, and its substitute is by no means obvious.

Why the C1 succeeds in its streaming performance where others have failed is not apparent. The interface has some inherent technical advantages over USB, such as its use of the TCP protocol to ensure data-transfer accuracy. But this protocol is employed in virtually all DLNA streaming DACs. Perhaps it is because the CH team goes even further, employing aggressive buffering to prevent the DAC from having to interpolate missing data. Whatever the explanation, with the C1 the convenience of not having to have a USB-connected computer can be indulged with impunity, to say the least.

Before leaving the CH-as-stack, a word about the X1 supply. Frankly, I did not care for it. The X1 was in the CH stack initially, powering the C1, and I left it in there for a long time, simply assuming it would be improving the sound. But when I took it out I realized that it had been compromising rather than improving things. Without the X1, the C1 feels dynamically unchained and the presentation relaxes. Although the X1 does yield a slightly quieter background, this comes at the expense of an unnatural truncation of note decays, as well as a flattening of their natural bloom. With the X1 in place, the CH stack

always feels like it's fighting against some invisible, restraining force—a tension that is audible and that detracts from musical engagement. Subtract the X1 and the tension disappears. To get the most out of the CH equipment, I advise foregoing the X1.

### A1 Power Amplifier

I mentioned at the outset that one CH component could be successfully used to great advantage even in a non-CH context. That component is the stellar A1 power amplifier. Before getting into this amp's sound, I must describe its flexibility, since it is beyond anything else in the industry.

Start with the basic configuration. Unlike virtually every other amp on the market, an A1 chassis actually contains two fully functional amp modules—right down to twin power supplies. Care to use this single chassis as a stereo amplifier? Be CH's guest. You need only to tell it to behave that way via the front panel menu and display. When you're ready to upgrade, simply buy a matching A1 and indicate you'd like each chassis to revert to mono operation. No other amplifier line I'm aware of offers such a seamless upgrade path.

But even in mono mode, the A1 offers options. Should your speakers support passive bi-amping (two sets of binding posts but still utilizing the speaker's internal crossover), the A1 can be configured such that its modules drive the upper and lower range of the speaker,

respectively. Not only that; the relative output, as well as other parameters that I'll come to shortly, can be adjusted separately for each module.

For those who want to push all of the A1's power through a single speaker input, there are two ways to do so. As you might expect, one way is to fully bridge the A1, which delivers high voltage but halves the amp's output impedance. A second and surprisingly ingenious option is to use just one amplifier module, driven by *both* power supplies. For speakers that require high current to sound their best, this is the optimal configuration.

Once the A1's configuration has been optimized for a given system (and budget), the *real* fine-tuning begins. In the first place, the amplifier's gain is fully adjustable. This means that gain can be optimized to a particular linestage and set of speakers, which can have a profound impact on the sound. Naturally, this parameter is set-able on a per-module basis.

The second key adjustable parameter is the ratio between global and local negative feedback. In the 1970s, Goldmund (and Spectral) pioneered the concept of high-speed, high-bandwidth amplifiers. One of the benefits of such designs is that feedback,

## THE CUTTING EDGE - CH Precision C1 Pre/DAC, A1 Power Amp, D1 Transport



which improves an amplifier's output signal accuracy, can be employed with minimal distortion. Soulution and CH Precision have resurrected this design approach, but with the advantage of newer, even higher-speed componentry.

To complicate things a bit, there are two types of feedback: local (around specific amplifier stages) and global (around the entire amplifier). Think of them, in sonic terms, as the solid-state equivalent of a tube's triode and pentode operation. One-hundred percent local feedback and zero global feedback yields the ultimate in tonal purity but the least control over the speaker (especially at low frequencies); ergo, flabby bass and imprecise timing. A full global feedback design reverses these attributes: great timing, less timbral purity.

CH Precision felt that it was important that the global/local feedback ratio to be set-able, thereby optimizing the amp for each system. In the A1, the percent of global feedback can be 0, 20 40, 50, 60, 80 and 100. These settings can even be made independently for each of the two amp modules within a chassis. Thus, if an A1 is being used to drive a bi-amped speaker, the possibility exists to set global feedback higher for the lower frequencies, to increase control, and lower for the higher frequencies, to maximize purity. (I tried this with my speakers and the result was a loss of coherence. I suspect this is typical.)

You may object that this is simply *too* much adjustability for an amplifier. I hear you. Especially after spending many hours tweaking these settings until I was satisfied that I had everything just so. (In my system, that meant both power supplies into a single amp module and global feedback set to 40%, which the importer indicates is a common outcome.) I even agree that many components on the market—DACs are particularly guilty of this—have superfluous settings and, worse, choose the worst-sounding ones as defaults. But the settings on this amp make sense in that they allow it to optimally accommodate a wide range of upstream and downstream equipment. The flexibility is both warranted and meaningful.

But it *is* a lot of flexibility to explore. Thankfully, the A1 facilitates the process with a straightforward menu structure and a large front-panel display. (Maneuvering through that menu is another matter, but one eventually gets the hang of it.)

The entire amp is microprocessor-controlled, so changes can be made in real-time; it's not even necessary to power down the amp to adjust, say, the feedback setting. Like a modern DAC, the A1 allows you to try out its various options easily, allowing you to efficiently arrive at those that work best in your system.

Of course, none of this adjustability would matter one whit if the A1 wasn't a good amp in the first place. The A1 is not a good amp; it is an extraordinary one. My reference Goldmund amp is hard to beat, with orchestral colors like plumes, transients with visceral smack, rhythms that lock, and dynamics ranging from subtle to

epic. The Goldmund makes it easy to follow musical lines and instrumental interplay. All this, as you might imagine, makes for a very captivating listening experience, one that few other amps in my experience can approach.

Yet switching from the reference to the A1 yields a blur of fortuitous paradoxes: the sound is much clearer, yet less edgy; tempos are more precise, but also more languid and unhurried; the presentation is more organic, yet it is easier to hear individual lines; much more information comes through, but details are less exaggerated. Through the A1, you can hear every little tendril of sound in the mix, yet they all come together seamlessly, as in real life.

### The CH Precision A1 is not a good amp; it is an extraordinary one.

In stereo mode, the A1 gives up very little. Balance and tonality remain unaltered—which is to say, impeccable. There is a slight loss of transient punch (transients are a little “rounder” whereas in mono mode they are sharper). But we are still in nearly peerless territory. (Some may actually prefer the stereo mode's presentation.)

On Norah Jones' *Feels Like Home*, the two modes sound identical, probably because there are no dynamic transients. Both configurations offer the same resolution, lovely harmonies, and moving microdynamics. In stereo, the Stravinsky is *almost* identical to the mono rendition. Stereo has less air, though the presentation is a tad more relaxed. In sum, a stereo A1 gets you about 95% of the mono configuration. Either way, the A1 is a certified winner.

#### Summary

The CH Precision equipment is the first that I have reviewed in twenty years that can match the speed, dynamics, and density of musical information delivered by my reference gear. At the same time, the CH stack ameliorates the deficiencies I thought I would have to live with to preserve those qualities, delivering linearity and musicality in equal parts. The torch has most definitely passed. **tas**